Farm King

OPERATOR AND PARTS MANUAL

Rotary Tiller (25 Series)

Model TL236, TL245, TL254

042014 FK303 Rev 1

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Manufacturer's Statement: For technical reasons, Buhler Industries Inc. reserves the right to modify machinery design and specifications provided herein without any preliminary notice. Information provided herein is of descriptive nature. Performance quality may depend on soil fertility, applied agricultural techniques, weather conditions and other factors.

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WARRANTY REGISTRATION FORM

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

Customer Name:		Dealer Name:	
Customer Address:		Dealer Address:	
City:	Prov / State:	City:	Prov / State:
Postal / Zip Code:	Phone:	Postal / Zip Code:	Phone:

Rotary Tiller Model:	Serial Number:	Delivery Date:

I have thoroughly instructed the buyer on the above described equipment which review included the Operator and Parts Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Dealer Inspection Report

- [ ] Bearings Turn Freely
- [ ] Chain Tension Checked
- [ ] Check Gear Box Oil Level
- [ ] Tines Properly Oriented
- [ ] Fasteners Tight
- [ ] Lubricate Machine
- [ ] Skid Shoes Properly Adjusted
- [ ] Slip Clutch (If equipped) Is Properly Adjusted

Safety

- [ ] Safety Chain On Hitch
- [ ] All Decals Installed
- [ ] Guards And Shields Installed And Secure
- [ ] Review Operating And Safety Instructions
- [ ] Check Gear Box And Chain Case For Leaks

Date: Dealer Rep. Signature:

The above equipment and Operator's And Parts Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date: Customer / Owner's Signature:

Remove this Warranty Registration Form from the Operator's And Parts Manual. Make two copies of the form. Send original Warranty Registration Form to Farm King. Give one copy to the customer and the dealer will keep one copy.

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INTRODUCTION

This Operator's and Parts Manual was written to give the owner / operator instructions on the safe operation, maintenance and part identification of the Farm King equipment. READ AND UNDERSTAND THIS OPERATOR'S AND PARTS MANUAL BEFORE OPERATING YOUR FARM KING EQUIPMENT. If you have any questions, see your Farm King dealer. This manual may illustrate options and accessories not installed on your Farm King equipment.

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OWNER'S INFORMATION

Thank you for your decision to purchase a Farm King 25 Series Rotary Tiller. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator and Parts Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator and Parts Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Farm King is continually working to improve its products. Farm King reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Farm King, makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Farm King assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

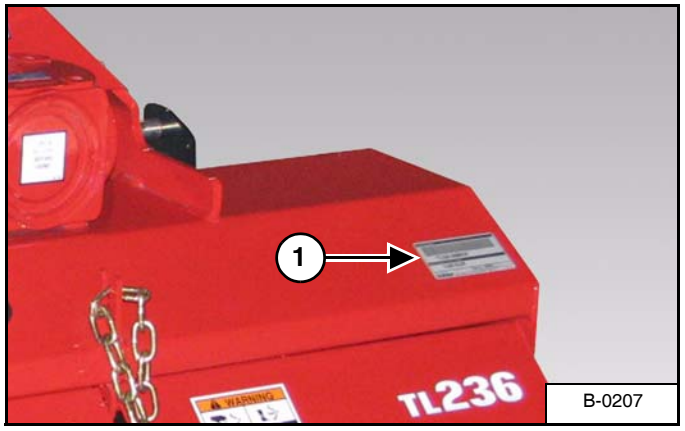
Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Farm King Dealer if you need assistance, information, or additional copies of the manual. Visit our website at **www.farm-king.com** for a complete list of dealers in your area.

The directions left, right, front and rear, as mentioned throughout this manual, are as viewed from the rear of the equipment.

Serial Number Location

Please enter the model and serial number in the space provided for easy reference.

Figure 1



Model Number: _____

Serial Number: _____

The serial number plate (Item 1) **[Figure 1]** is located on the right rear of the deck weldment, just above the drag shield.

Always use your serial number when requesting information or when ordering parts.

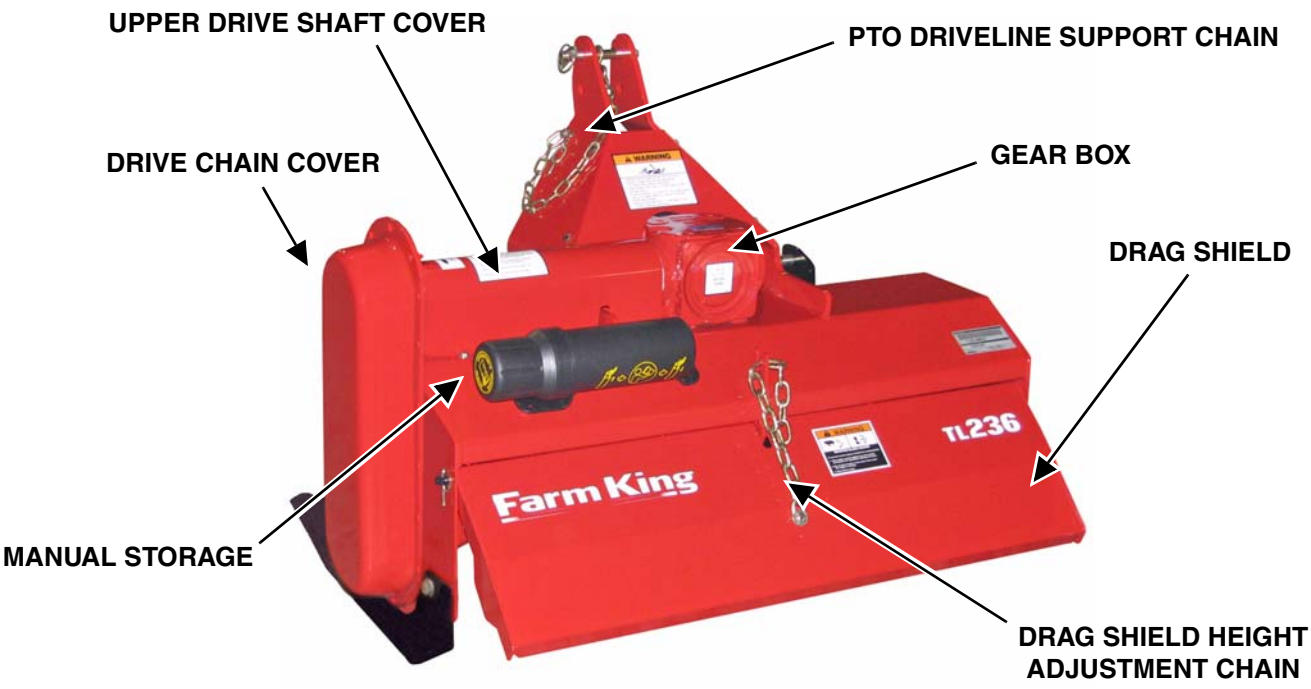
Manual Storage

Figure 2

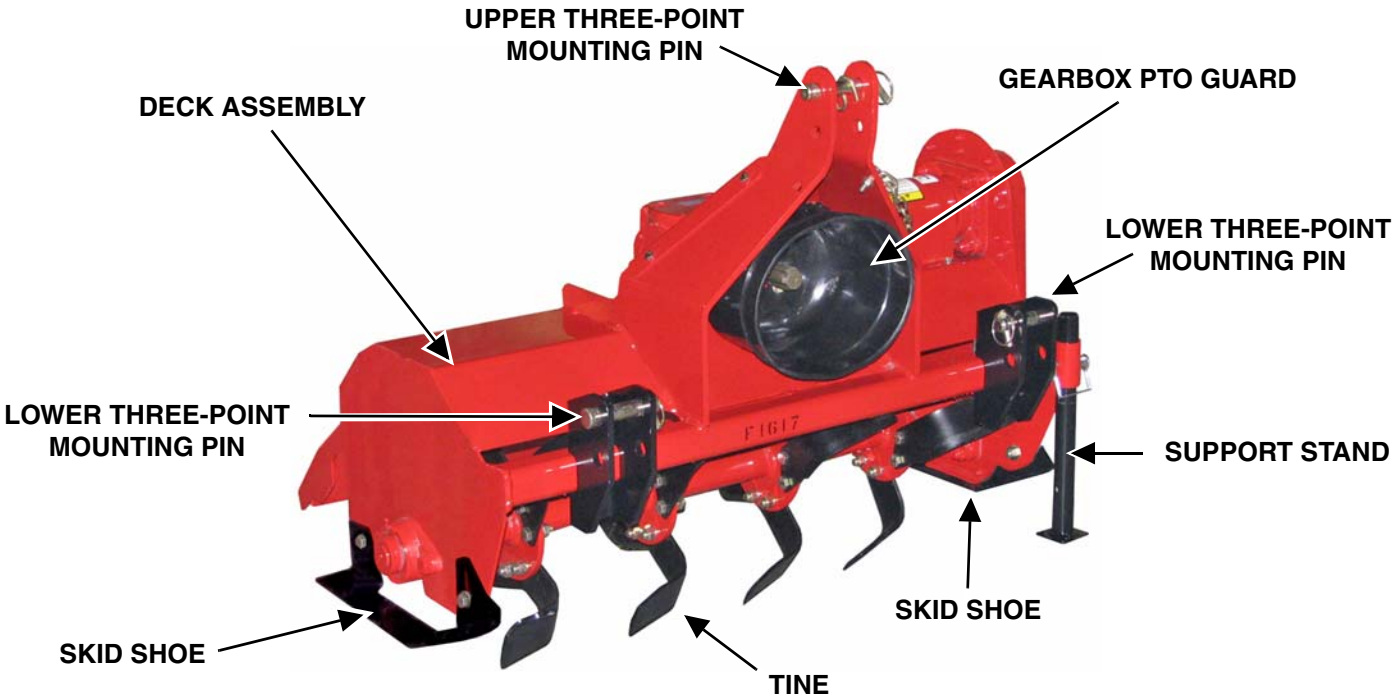
The operator's and parts manual and other documents can be stored in the canister (Item 1) **[Figure 2]** located on the left side of the ladder.

EQUIPMENT IDENTIFICATION

Component Location



B-0205



B-0206

SHIPPING KIT AND BUNDLE NUMBERS

The following is a list of shipping kits for this product and the Descriptions, Bundle Numbers and Quantities for each kit.

DESCRIPTION	BUNDLE NUMBER	QUANTITY
TL236 36 in. Tiller C/W Slip Clutch PTO		
Deck Assembly	F1617	1
PTO	F0356	1
TL245 45 in. Tiller C/W Slip Clutch PTO		
Deck Assembly	F1618	1
PTO	F0356	1
TL254 54 in. Tiller C/W Slip Clutch PTO		
Deck Assembly	F1619	1
PTO	F0356	1
TL236S 36 in. Tiller C/W Shear Pin PTO		
Deck Assembly	F1617	1
PTO	F0357	1
TL245S 45 in. Tiller C/W Shear Pin PTO		
Deck Assembly	F1618	1
PTO	F0357	1
TL254S 54 in. Tiller C/W Shear Pin PTO		
Deck Assembly	F1619	1
PTO	F0357	1

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SAFETY INSTRUCTIONS

Safe Operation Is The Operator's Responsibility

Safety Alert Symbol

This symbol with a warning statement means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CAUTION

The signal word CAUTION on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

Safe Operation Needs A Qualified Operator

WARNING

Operators must have instructions before operating the machine. Untrained operators can cause injury or death.

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

A Qualified Operator Must Do The Following:

Understand the Written Instructions, Rules and Regulations

- The written instructions from Farm King include the Warranty Registration, Dealer Inspection Report, Operator's and Parts Manual and machine signs (decals).
- Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may apply to local driving requirements or use of a Slow Moving Vehicle (SMV) emblem. Regulations may identify a hazard such as a utility line.

Have Training with Actual Operation

- Operator training must consist of a demonstration and verbal instruction. This training is given by the machine owner prior to operation.
- The new operator must start in an area without bystanders and use all the controls until he or she can operate the machine and implement safely under all conditions of the work area. Fasten seat belt securely when Roll-Over Protective Structure (ROPS) is up and locked. DO NOT wear the seat belt if ROPS is down.

Know the Work Conditions

- Clear working area of all bystanders, especially small children and all obstacles that might be hooked or snagged, causing injury or damage.
- Know the location of any overhead or underground power lines. Call local utilities and have all underground power lines marked prior to operation.
- Wear tight fitting clothing. Always wear safety glasses when doing maintenance or service.

SAFETY INSTRUCTIONS (CONT'D)

Use Safety Rules

- Read and follow instructions in this manual and the tractor's Operators Manual before operating.
- Under no circumstances should young children be allowed to work with this equipment.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.
- Check for underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the equipment is securely fastened to the tractor.
- Make sure all the tractor controls are in the NEUTRAL position before starting the tractor.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator and Parts Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders, especially small children.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved tractors.
- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- DO NOT make any adjustments or repairs on the equipment while the tractor is running.
- Keep shields and guards in place. Replace if damaged.

Transport Safety

- Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- Always yield to oncoming traffic in all situations and move to the side of the road so any following traffic may pass.
- Always enter curves or drive up or down hills at a low speed and at a gradual steering angle.
- Never allow riders on either tractor or equipment.
- Keep tractor in a lower gear at all times when traveling down steep grades.
- Maintain proper brake settings at all times (if equipped).

Safety Rules For Power Take-Off (PTO) Driven Equipment

- Keep PTO shields and all guards in place. Replace damaged or missing shields and guards before operating.
- Follow warnings and instructions on machine signs (decals). Replace damaged or missing decals.
- Do not wear loose or bulky clothing around the PTO or other moving parts.
- Keep bystanders away from PTO driven equipment, and never allow children near machines.
- Read and understand the manuals for the PTO driven equipment and be aware of safe operating procedures and hazards that may not be readily apparent.
- Never operate over 540 rpm.
- Always walk around equipment to avoid coming near a turning PTO driveline. Stepping over, leaning across or crawling under a turning PTO driveling can cause entanglement.
- Position the machine and equipment hitch correctly to prevent driveline stress and separation.
- Use caution when turning. Turning too sharp can cause driveline damage.
- Use caution when raising PTO driven equipment. Excessive driveline angle can cause driveline damage. Use stops if needed.

Machine Requirements And Capabilities

- Fasten seat belt securely. If equipped with a foldable Roll-Over Protective Structure (ROPS), only fasten seat belt when ROPS is up and locked. DO NOT wear seat belt if ROPS is down.
- Machine’s three-point hitch must be equipped with sway bars or chains.
- Stop the machine and engage the parking brake. Install blocks in front of and behind the rear tires of the machine. Install blocks underneath and support the equipment securely before working under raised equipment.
- Keep bystanders clear of moving parts and the work area. Keep children away.
- Use increased caution on slopes and near banks and ditches to prevent overturn.
- Make certain that the Slow Moving Vehicle (SMV) emblem is installed so that it is visible and legible. When transporting the equipment, use the flashing warning lights (if equipped) and follow all local regulations.
- Operate this equipment with a machine equipped with an approved Roll-Over Protective Structure (ROPS). Always wear seat belt when the ROPS is up. Serious injury or death could result from falling off the machine.
- Before leaving the operator’s position:

1. Always park on a flat level surface.
2. Place all controls in neutral.
3. Engage the parking brake.
4. Stop engine.
5. Wait for all moving parts to stop.

- Carry passengers only in designated seating areas. Never allow riders on the machine or equipment. Falling off can result in serious injury or death.
- Start the equipment only when properly seated in the operator’s seat. Starting a machine in gear can result in serious injury or death.
- Operate the machine and equipment from the operator's position only.
- The parking brake must be engaged before leaving the operator’s seat. Rollaway can occur because the transmission may not prevent machine movement.

FIRE PREVENTION

Maintenance

The machine and some equipment have components that are at high temperatures under normal operating conditions. The primary source of high temperatures is the engine and exhaust system. The electrical system, if damaged or incorrectly maintained, can be a source of arcs or sparks.

Flammable debris (leaves, straw, etc.) must be removed regularly. If flammable debris is allowed to accumulate, it can cause a fire hazard. Clean often to avoid this accumulation. Flammable debris in the engine compartment is a potential fire hazard.

The operator's area, engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazards and overheating.

All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Operation

The Farm King machine must be in good operating condition before use.

Check all of the items listed on the service schedule under the 8 hour column. (See "SERVICE SCHEDULE" on page 42.)

Do not use the machine where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.

Starting

Do not use ether or starting fluids on any engine that has glow plugs. These starting aids can cause explosion and injure you or bystanders.

Use the procedure in the tractor's operator's manual for connecting the battery and for jump starting.

Electrical

Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part or wires that are loose or frayed.

Battery gas can explode and cause serious injury. Do not jump start or charge a frozen or damaged battery. Keep any open flames or sparks away from batteries. Do not smoke in battery charging area.

Hydraulic System

Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.

Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.

Fueling

Stop the engine and let it cool before adding fuel. No smoking! Do not refuel a machine near open flames or sparks. Fill the fuel tank outdoors.

Spark Arrester Exhaust System

The spark arrester exhaust system is designed to control the emission of hot particles from the engine and exhaust system, but the muffler and the exhaust gases are still hot.

Check the spark arrester exhaust system regularly to make sure it is maintained and working properly. Use the procedure in the machine's Operator's Manual for cleaning the spark arrester muffler (if equipped).

FIRE PREVENTION (CONT'D)

Welding And Grinding

Always clean the machine and equipment, disconnect the battery, and disconnect the wiring from the machine controls before welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the machine when welding.

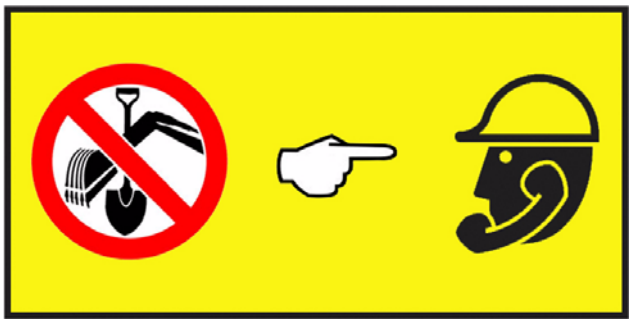
Have good ventilation when grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.

Dust generated from repairing nonmetallic parts such as hoods, fenders or covers can be flammable or explosive. Repair such components in a well ventilated area away from open flames or sparks.

Fire Extinguishers

Know where fire extinguishers and first aid kits are located and how to use them. Inspect the fire extinguisher and service the fire extinguisher regularly. Obey the recommendations on the instructions plate.

Call Before You Dig

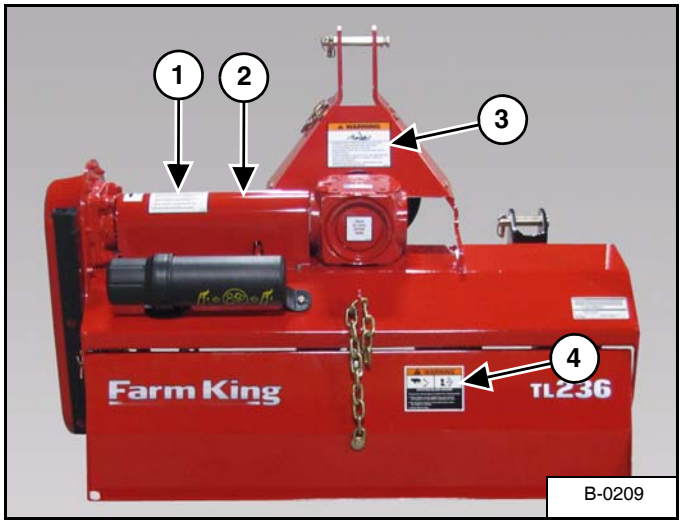


Call Before You Dig
Dial 811 (USA Only)
1-888-258-0808 (USA & Canada)

When you call, you will be directed to a location in your state / province, or city for information about buried lines (telephone, cable TV, water, sewer, gas, etc.).

SAFETY SIGNS (DECALS)

Follow the instructions on all the Signs (Decals) that are on the equipment. Replace any damaged signs (decals) and be sure they are in the correct locations. Equipment signs are available from your Farm King equipment dealer.



1

⚠ CAUTION

1. Read Operator's Manual Before using.
2. Do not permit riders.
3. Keep all shields in place.
4. Keep hands, feet, clothing and hair away from moving parts.
5. Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.
6. Remove bystanders, especially children, before starting or while operating.
7. Block up before working beneath unit.
8. Review safety instructions annually.

967382

p/n 967382

2

⚠ DANGER

MISSING SHIELD HAZARD

Install and secure shield before operating

915861

Located under shield p/n 915861

3

⚠ WARNING

ENSURE SAFETY SHIELDS ARE IN PLACE AND IN GOOD CONDITION BEFORE OPERATING.
PTO OPERATING SPEED IS 540 RPM.
KEEP HANDS, FEET AND CLOTHING AWAY FROM MOVING PARTS.
ALWAYS REMOVE TRACTOR KEY, SET PARK BRAKE AND PLACE IMPLEMENT IN LOWEST POSITION WHEN UNATTENDED.
ENSURE ROTATION OF ALL COMPONENTS HAS STOPPED BEFORE SERVICING.

966701

p/n 966701

4

⚠ WARNING

ROTATING BLADE HAZARD

To prevent serious injury or death from rotating blade:

1. Stop engine, remove ignition key and wait for moving parts to stop before opening the rear door.
2. Do not place hands or feet under frame when the engine is running.
3. Keep others away.

967383

p/n 967383

EQUIPMENT DECALS AND SIGNS

NOTE: All safety related decals are shown in the Safety Signs Section. (See "SAFETY SIGNS (DECALS)" on page 18.)

Check and replace any worn, torn, hard to read or missing decals on your equipment.

Part Number 910625

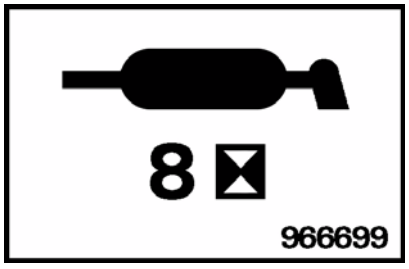
Part Number 916750 (Model)

Part Number 916751 (Model)

Part Number 916752 (Model)

Part Number 967388

Part Number 966699 (Grease)



SAFETY SIGN-OFF FORM

⚠ WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator's and Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

Farm King follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and / or maintaining the rotary tiller must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Annually review this information before the season start-up and make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. An untrained operator is unqualified to operate this machine.

The following sign-off sheet is provided for your record and to show that all personnel who will be working with the equipment have read and understand the information in this Operator's and Parts Manual and have been instructed in the operation of the equipment.

SIGN-OFF SHEET		
Date	**Employee's Signature**	**Employer's Signature**

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GENERAL INFORMATION

Pre - Operation Checklist

Before operating the rotary tiller for the first time and each time thereafter, check the following items:

⚠ WARNING

AVOID INJURY OR DEATH

- **Disengage the PTO, engage the machine's parking brake, stop the engine and make sure all rotating components are completely stopped before connecting, disconnecting, adjusting or cleaning any PTO driven equipment.**
- **Always keep PTO shields and all guards in place when using PTO driven equipment.**
- **Disengage PTO for road travel.**
- **Keep hands, feet and clothing away.**

⚠ WARNING

AVOID INJURY OR DEATH

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

1. Lubricate the equipment per the schedule outline in the Maintenance Section. (See "SERVICE SCHEDULE" on page 42.)
2. Check the rotary tiller three-point mounts for damaged, loose or missing parts. Repair as needed before operation.
3. Use only a tractor of adequate power and weight to pull the machine.
4. Check that the equipment is properly attached to the tractor. Be sure retainers are used on the mounting pins.
5. Check the tines. Remove any twine, wire or other material that has become entangled.
6. Check that all bearings turn freely. Replace any that are rough or seized.
7. Make sure that all guards and shields are in place, secured and functioning as designed.
8. To engage the clutch, fully turn out the four socket set screws on the inside of the PTO clutch assembly.
9. Check that the PTO driveline telescope easily and turns freely.
10. Check the oil level in the gearbox. (See Figure 22 on page 44.)

Break - In Checklist

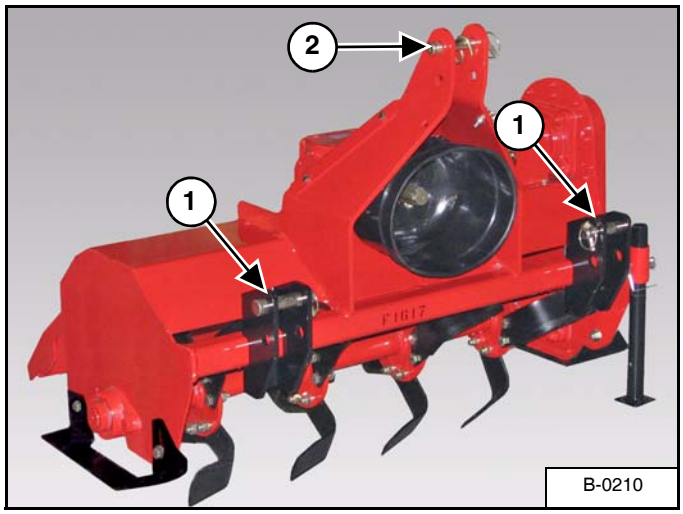
Check the following mechanical items after 1 hour of operation and again after 10 hours of operation:

⚠ WARNING

AVOID INJURY OR DEATH

- **Disengage the PTO, engage the machine's parking brake, stop the engine and make sure all rotating components are completely stopped before connecting, disconnecting, adjusting or cleaning any PTO driven equipment.**
- **Always keep PTO shields and all guards in place when using PTO driven equipment.**
- **Disengage PTO for road travel.**
- **Keep hands, feet and clothing away.**

Figure 3



1. Check the two lower three-point mounts (Item 1) and upper three-point mount (Item 2) **[Figure 3]** for damaged, loose or missing parts. Repair as needed before operation.
2. Check for loose fasteners and hardware. Tighten as required.
3. Check that the PTO driveline telescopes easily and turns freely.
4. Check condition of tines and bearings.
5. Check gearbox oil level. Fill as required. (See "LUBRICATION" on page 43.)
6. Check the rotor shaft and tines. Remove any twine, wire or other material that has become entangled.

Tractor Requirements

⚠ WARNING

- **Do NOT exceed 540 RPM PTO.**
- **Keep PTO shields and all guards in place.**
- **Keep away from moving parts.**
- **Keep bystanders away.**

ROTARY TILLER MODEL	TRACTOR HP
TL236	12 - 18
TL245	14 - 22
TL254	18 - 25

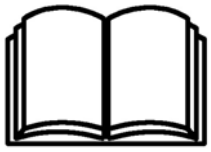
The tractor must be equipped with a 6 - spline, 1-3/4 in. (44.5 mm) PTO shaft when used with the 25 Series Rotary Tiller.

IMPORTANT

Install the correct front ballast on the tractor before connecting the rotary tiller to the tractor. See your tractor's operation manual for ballast information.

Entering And Leaving The Operator's Position

IMPORTANT



Follow the instructions in your tractor's operation manual for the correct procedure.

Entering The Operator's Position

Move to the operator's position, start the engine and release the parking brake.

Leaving The Operator's Position

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

Park the tractor / equipment on a flat level surface.

Place all controls in neutral, engage the park brake, stop the engine and wait for all moving parts to stop. Leave the operator's position.

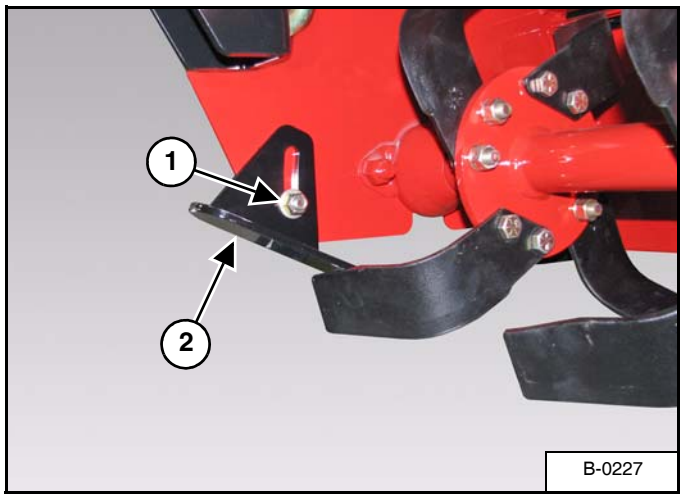
INITIAL SET-UP

Assembly

NOTE: The rotary tiller is shipped with the skid shoes mounted on the inside of the deck assembly. The skid shoes must be removed and re-installed on the outside of the deck assembly (if required).

Procedure

Figure 4

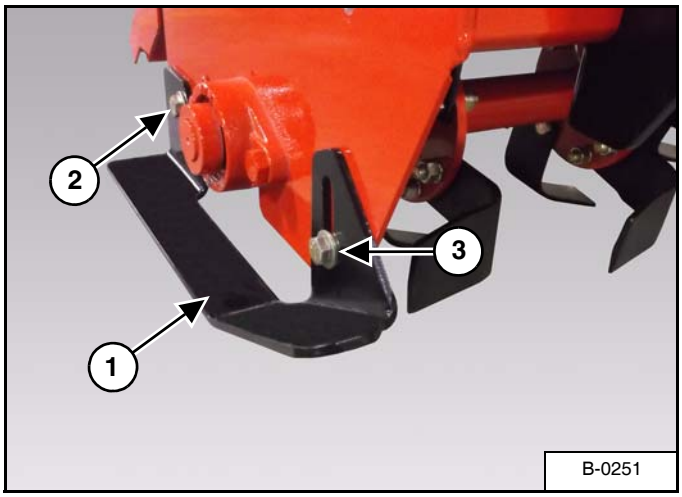


Remove the two bolt(s) and nut(s) (Item 1) (both ends) and remove the skid shoe (Item 2) **[Figure 4]**.

Repeat procedure on opposite skid shoe.

NOTE: The skid shoes will be re-installed on the opposite side of the deck assembly from which they were removed.

Figure 5



Align the right skid shoe (Item 1) **[Figure 5]** with the mounting holes in the deck assembly.

Install the bolt (Item 2) **[Figure 5]** through the skid shoe and deck assembly. Install nut (do not tighten).

Install the washer onto the front bolt (Item 3) **[Figure 5]**, then install the bolt through the skid shoe and deck assembly. Install nut (do not tighten).

Level the skid shoe (front to back) and tighten bolts and nuts to secure the skid shoe to the deck assembly.

NOTE: Skid shoes must be level from front to back. Left and right skid shoes must be set at the same working depth.

Repeat procedure for the left skid shoe.

Verify both skid shoes are set at the same working depth.

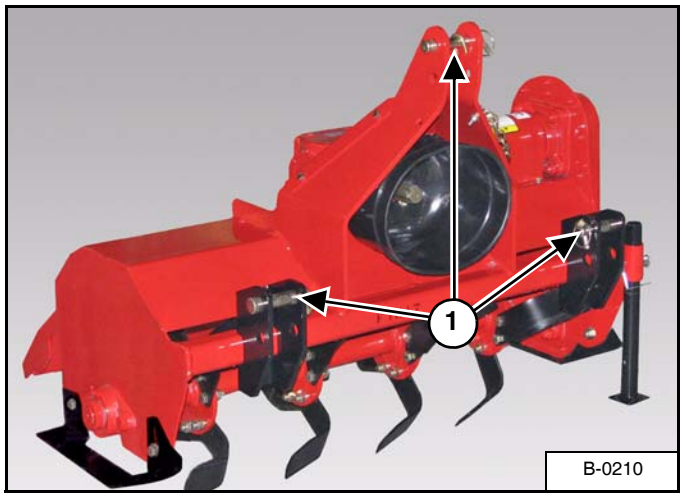
Connecting The Rotary Tiller To The Tractor

Always inspect the tractor's three-point hitch and rotary tiller three-point mounts before connecting. See the tractor's owner's manual.

Move the tractor drawbar into the storage position or remove (if necessary) to prevent interference with rotary tiller operation. (See the tractor's operator's manual for the correct procedure.)

Install the PTO driveline (if required) onto the rotary tiller.

Figure 6



Remove the three implement mounting pins (Item 1) **[Figure 6]** from the rotary tiller.

Enter the operator's position. (See "Entering The Operator's Position" on page 25.)

⚠ WARNING

AVOID INJURY OR DEATH

Before moving the tractor, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the tractor and the equipment when backing up to the equipment for connecting.

Move the tractor into position in front of the rotary tiller.

Move the tractor backwards, aligning the tractor's three-point hitch and rotary tiller three-point mounts.

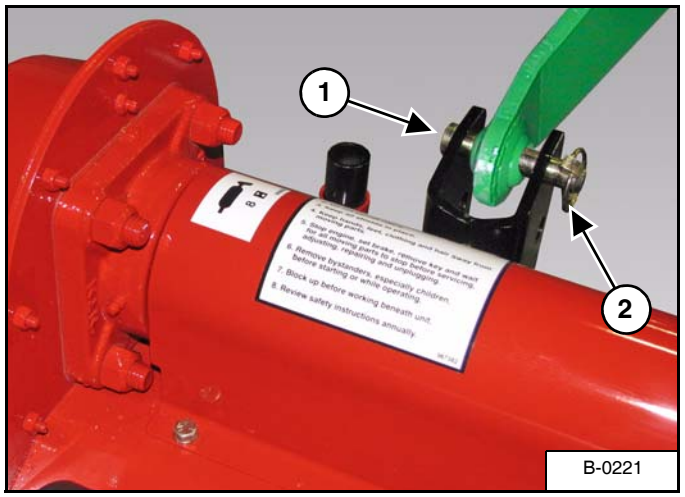
Leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

⚠ WARNING

AVOID INJURY OR DEATH

Keep fingers and hands out of pinch points when connecting and disconnecting equipment.

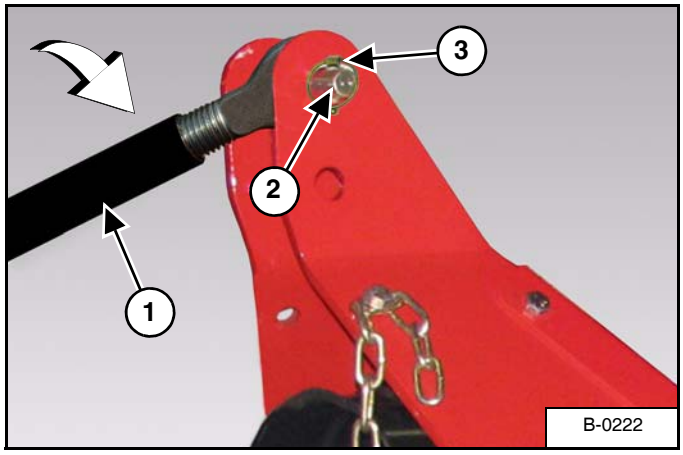
Figure 7



Install the mounting pin (Item 1) through the pin bracket and sway bar (both sides). Install lynch pin (Item 2) **[Figure 7]** (both sides).

NOTE: Always use implement mounting pins of adequate size and strength and a retaining pin with a locking device.

Figure 8



Lower the top link (Item 1) **[Figure 8]** until it aligns with the implement upper mounting hole.

Install the pin (Item 2) and lynch pin (Item 3) **[Figure 8]**.

NOTE: It may be necessary to lengthen or shorten the top link to align it with the implement mounting hole. (See the tractor's operator's manual for the correct procedure.)

The implement can be leveled front to back by adjusting the top link. (See the tractor's operator's manual for the correct procedure.)

Lock / pin the lower lift arms to keep the rotary tiller from moving side to side during operation.

Raise the support stand.

Connecting The Rotary Tiller Using A Quick Hitch

- Align the lower left link arm with the mounting pin.
- Slide the ball over the pin and install the lynch pin.
- Use the screw jack on the right lift arm to align the ball with the pin.
- Slide the ball over the mounting pin and install the lynch pin.
- Level the frame using the screw jack.
- Remove the retainer and pin from the mast.
- Align top link using the turnbuckle.
- Insert pin and install lynch pin.
- Level frame using the turnbuckle.

Connecting The PTO Driveline

NOTE: The PTO shafts are shipped with the slip clutch (if equipped) disengaged. Engage the slip clutch. (See "Engage The Clutch" on page 49.)

⚠ WARNING

AVOID INJURY OR DEATH

Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause serious injury or death.

NOTE: Clean and grease tractor's PTO shaft and PTO driveline coupling each time driveline is connected.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

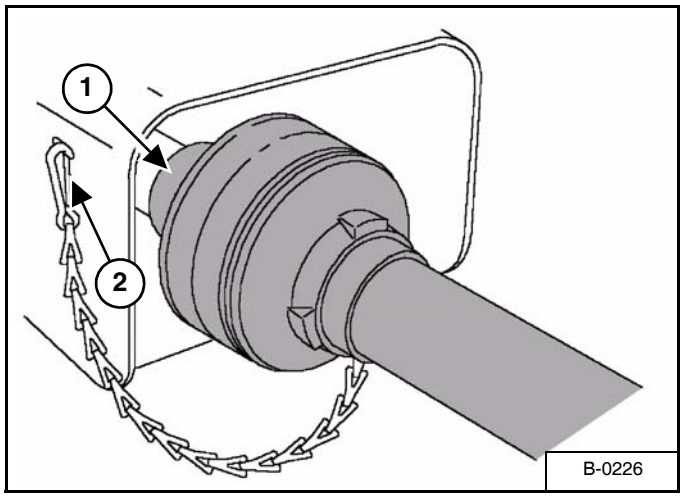
! IMPORTANT

Improper hitch installation can cause PTO driveline damage.

- **Do not modify the three point hitch.**
- **Make sure the PTO driveline is of adequate length and that u-joints are in the correct phase.**

Remove the PTO driveline from the storage position (if applicable).

Figure 9



Retract the collar (Item 1) **[Figure 9]** and slide the PTO driveline onto the tractor PTO shaft. Release the collar and the driveline will lock onto the shaft. Push and pull the PTO driveline back and forth several times and make sure it is securely attached to the PTO shaft.

Install PTO driveline safety chain (Item 2) **[Figure 9]**.

NOTE: The PTO driveline must have a means to retain it to the PTO shaft on the tractor.

⚠ WARNING

- **Do NOT exceed 540 RPM PTO.**
- **Keep PTO shields and all guards in place.**
- **Keep away from moving parts.**
- **Keep bystanders away.**

PTO Driveline

PTO Driveline Length Check

NOTE: Due to variations in distances between tractor PTO shafts and implement input shafts, drivelines may need to be shortened or a longer shaft may be required. When fitting the implement to the tractor, the PTO driveline, with telescoping sections, must be inspected. When the sections are at the most compressed operating position, the sections must not "bottom out". At its shortest length, there must be at least 2 in. (50,8 mm) of clearance between each section end and opposite section end at the most compressed operating position. When the sections are at the most extended position, there must be sufficient engagement between the sections. At its farthest operating extension, a minimum section engagement of 33% of shaft length must be maintained.

⚠ WARNING

AVOID INJURY OR DEATH

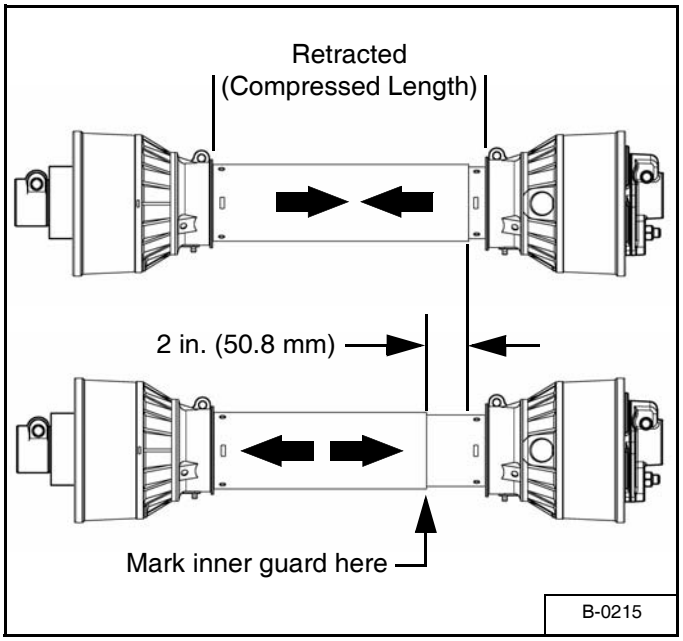
- **Do NOT exceed the rated implement PTO speed.**
- **Stay clear of rotating driveline.**
- **Keep bystanders away.**
- **Keep hands, feet, clothing and long hair away.**
- **Keep PTO shields and all guards in place.**
- **Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator's position.**
- **Do NOT service the tractor or implement with the PTO engaged.**
- **Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.**
- **Disengage PTO for road travel.**

PTO Driveline Bottoming Out Check

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position (if applicable).

Figure 10



1. Disconnect the PTO driveline from the tractor and slide the PTO driveline together until fully retracted (compressed).
2. Measure the retracted (compressed) length of PTO driveline **[Figure 10]**.
3. Extend the PTO driveline 2 in. (50,8 mm) from the retracted length and place a mark on the inner guard at the end of the outer guard **[Figure 10]**.
4. Reattach the PTO driveline to the tractor PTO shaft.
5. Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.
6. With the rear PTO DISENGAGED, raise and lower the implement and watch the PTO driveline extend and retract.
7. If the outer PTO driveline guard slides in (retracts) over the mark at any point of travel, the PTO driveline needs to be shortened.

Reducing The PTO Driveline Length

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

⚠ WARNING

AVOID INJURY OR DEATH

- **Do NOT exceed the rated implement PTO speed.**
- **Stay clear of rotating driveline.**
- **Keep bystanders away.**
- **Keep hands, feet, clothing and long hair away.**
- **Keep PTO shields and all guards in place.**
- **Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator's position.**
- **Do NOT service the tractor or implement with the PTO engaged.**
- **Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.**
- **Disengage PTO for road travel.**

Remove the PTO driveline from the tractor and place in storage position (if equipped).

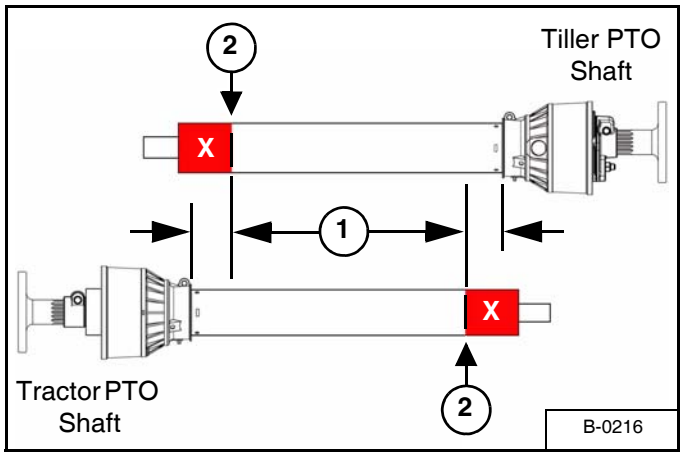
Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Raise or lower the three-point implement to get the shortest distance between the tractor PTO shaft and three-point implement gearbox PTO shaft.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

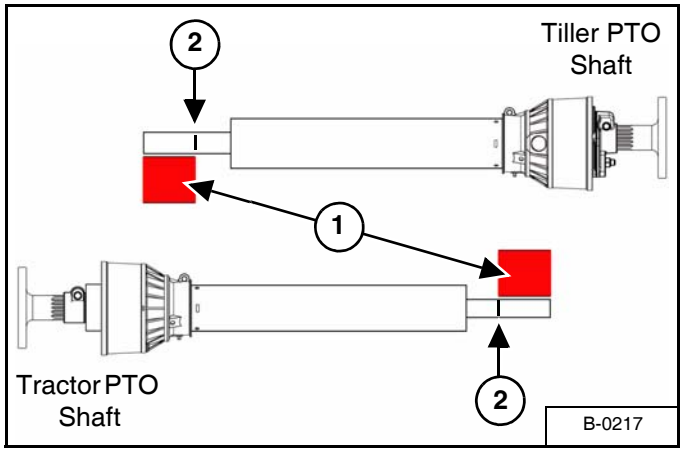
Pull the PTO driveline apart and reinstall each individual section; one half to the tractor PTO shaft and one half to the implement gearbox PTO shaft.

Figure 11



1. Hold PTO driveline sections parallel to one another and measure back 2 in. (50,8 mm) (Item 1) from the yoke of each section and place mark on opposite section. Cut the plastic shield at this length (Item 2) **[Figure 11]**.

Figure 12



2. Using the plastic guard lengths that were cut off in **[Figure 11]**, align the cut off lengths (Item 1) with the end of the inner & outer shafts. Place a mark (Item 2) **[Figure 12]** on the inner & outer shafts and cut the inner & outer shafts off at this length.
3. Round off all sharp edges and debur.
4. Thoroughly grease and install the PTO driveline halves together.
5. Recheck for proper operation.

PTO Driveline Engagement Check

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Make sure the PTO driveline and all rotating components have come to a complete stop before exiting the compact tractor.

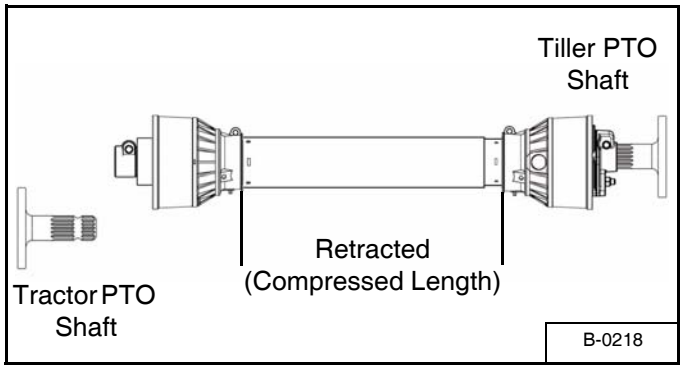
⚠ WARNING

AVOID INJURY OR DEATH

- **Do NOT exceed the rated implement PTO speed.**
- **Stay clear of rotating driveline.**
- **Keep bystanders away.**
- **Keep hands, feet, clothing and long hair away.**
- **Keep PTO shields and all guards in place.**
- **Disengage PTO, move the tractor controls to the Neutral position, stop the engine and make sure all rotating components are stopped before leaving the operator's position.**
- **Do NOT service the tractor or implement with the PTO engaged.**
- **Do NOT service the implement in a raised position unless properly blocked and with all rotating components stopped.**
- **Disengage PTO for road travel.**

1. Disconnect the PTO driveline from the tractor and fully slide the driveline sections together (retracted).

Figure 13



2. Measure the retracted (compressed) length of the PTO driveline between the bases of the plastic guards **[Figure 13]**.

3. Multiply the retracted driveline length by 1.667 to determine the PTO driveline Maximum Operating Length. (i.e.: 25.5 in. (647,7 mm) x 1.667= 42.5 in. (1079,7 mm) Maximum Operating Length).

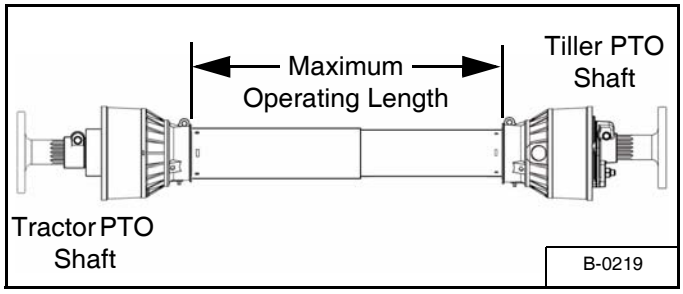
4. Attach the PTO driveline to the tractor PTO output shaft.

5. Enter the operator's position. (See "Entering The Operator's Position" on page 25.)

6. With the PTO driveline attached, position the three-point implement to where the telescoping PTO driveline is at its maximum operating extension.

7. Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Figure 14



8. Measure the length of the PTO driveline between the bases of the plastic shields **[Figure 14]** to determine the maximum operating length.

   A. If the measured maximum operating length is less than the Maximum Operating Length calculation (from Step 3), the PTO driveline has adequate engagement

   B. If the measured maximum operating length is equal to or more than the Maximum Operating Length calculation (from Step 3), the PTO driveline does not have adequate engagement and should be replaced with a longer driveline. See your Farm King dealer for available PTO drivelines.

Adjusting Skid Shoe Height

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

⚠ WARNING

AVOID INJURY OR DEATH

Securely block up the implement before working underneath.

Park the tractor and implement on a flat level surface.

Fully raise the rotary tiller.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Place blocking under the rotary tiller. Position blocking away from skid shoes, allowing access to skid shoe mounting bolts and nuts.

Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Lower the rotary tiller onto the blocking.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

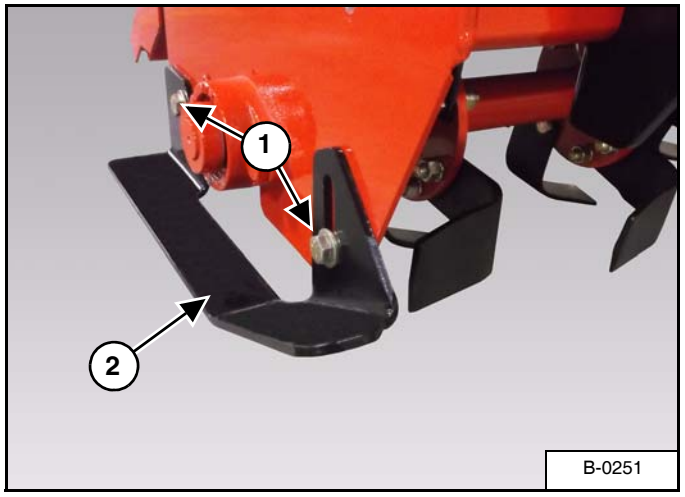
NOTE: The following instructions may not show your exact skid shoes as they appear but the procedure is the same.

Skid Shoe Settings

Decrease Working Depth - Lower skid shoes.

Increase Working Depth - Raise skid shoes.

Figure 15



Loosen bolt(s) and nut(s) (Item 1) (both ends) on the skid shoe (Item 2) **[Figure 15]**. Raise or lower the skid shoe to the desired working depth. Tighten bolts and nuts to secure the skid shoe in position.

NOTE: Skid shoes must be level from front to back. Left and right skid shoes must be set at the same working depth.

Repeat procedure on opposite skid shoe.

Verify both skid shoes are set at the same working depth.

Adjusting Drag Shield

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

Park the tractor and implement on a flat level surface.

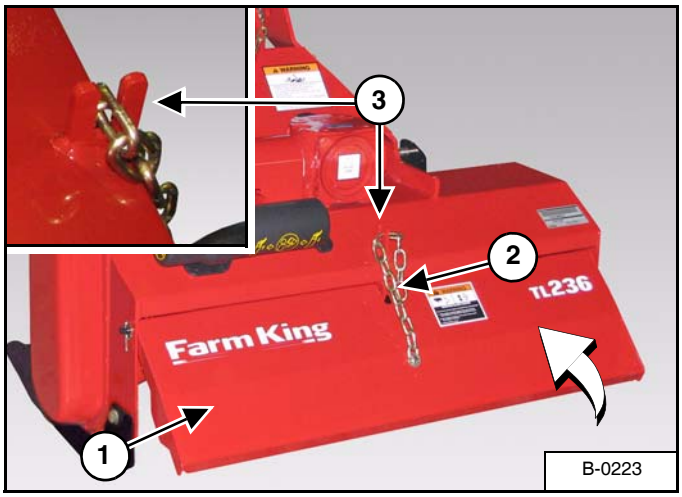
Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Drag Shield Settings

Compact / Smooth Tilled Soil - Adjust the drag shield according to the skid shoe / working depth of the rotary tiller.

Non-Compacted Tilled Soil - Fully raise the drag shield.

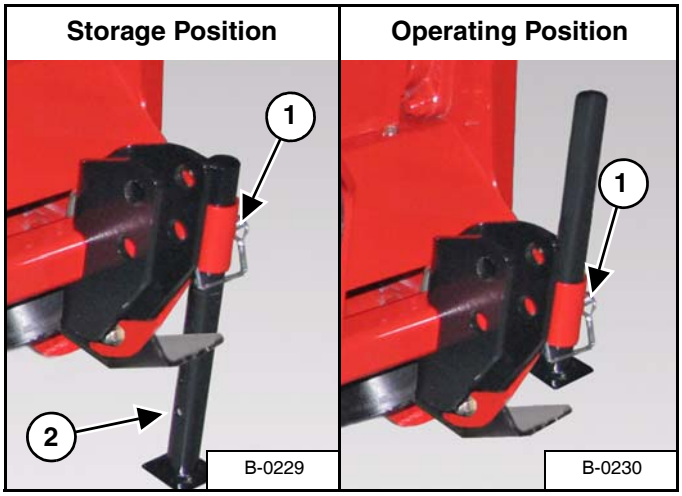
Figure 16



Lift up on the drag shield (Item 1), remove the height adjustment chain (Item 2) from the lock (Item 3) **[Figure 16]**. Place the drag shield at the desired height and re-install height adjustment into the lock.

Support Stand

Figure 17



Remove the lynch pin (Item 1) and raise the support stand until the lower mounting hole (Item 2) **[Figure 17]** is aligned with mounting tube.

Install lynch pin through the mounting tube and support stand to secure the support stand in the operating position.

ROTARY TILLER OPERATION

Operating The Rotary Tiller

⚠ CAUTION

- Read operator and parts manual before operating the implement.
- Do not permit riders.
- Keep all guards and shields in place.
- Keep hands, feet, clothing and hair away from moving parts.
- Stop engine, set brake, remove key and wait for all moving parts to stop before servicing, adjusting, repairing and unplugging.
- Remove bystanders, especially children, before starting or while operating.
- Block up before working beneath unit.
- Review safety instructions annually.

⚠ WARNING

ROTATING DRIVELINE HAZARD

To prevent serious injury or death from rotating drivelines:

1. Keep driveline shields in place when operating.
2. Keep hands, feet and clothing away from moving parts.
3. Operate only at 540 RPM.

⚠ WARNING

ROTATING BLADE HAZARD

To prevent serious injury or death from rotating blades:

1. Stop engine, set brake, remove key and wait for all moving parts to stop before opening rear door.
2. Do not place hands or feet under frame when the engine is running.
3. Keep others away.

⚠ WARNING

AVOID INJURY OR DEATH

- Use ROPS and fasten the seat belt.
- Install the correct front ballast (if required).
- Operate the tractor from the operator's seat only.

⚠ WARNING

AVOID INJURY OR DEATH

Check area to be tilled for underground lines such as electrical, gas, oil, water, etc. DIAL 811 (USA Only) or 1-888-258-0808 (USA & Canada) and consult local utilities before tilling. Extreme caution must be used in areas where utility lines are present.

Connect the rotary tiller to the tractor. (See “Connecting The Rotary Tiller To The Tractor” on page 27.)

Place the support stand into the operating position. (See “Support Stand” on page 34.)

Adjust skid shoe height. (See “Adjusting Skid Shoe Height” on page 33.)

Adjust drag shield. (See “Adjusting Drag Shield” on page 34.)

Level the rotary tiller (front to back) using the upper link. (See the tractor’s operator’s manual for the correct procedure.)

Move the tractor and rotary tiller to work area.

Adjust engine speed to low idle.

Lower the rotary tiller until the tines are just above the ground.

Slowly engage the tractor PTO to start rotor rotation.

Slowly increase engine speed to 540 rpm. Do not exceed 540 PRM.

Starting Tilling Process

NOTE: Depending on ground compaction, additional passes may be required to reach desired working depth.

Slowly lower the rotary tiller until the skid shoes contact the ground.

Start driving forward at the desired speed. Watch for and avoid obstructions and obstacles that may cause damage to the rotary tiller.

When approaching the end of the work area, stop the tractor and raise the rotary tiller slightly above the ground.

⚠ CAUTION

Do not fully raise the implement when the PTO is engaged. Damage to the tractor and implement may occur.

Move tractor and position the rotary tiller at the starting point (along side end of previous pass), overlapping the tilled area approximately four inches.

Slowly lower the rotary tiller until the skid shoes contact the ground.

Start driving forward at the desired speed. Continue operating the tractor and rotary tiller until the desired work area is complete.

Tilling Process Completed

When the desired work area has been tilled, stop the tractor, lower the engine speed and disengage the tractor PTO.

Fully raise the rotary tiller into the transport position and move the tractor and rotary tiller to next work site.

Work Site Recommendations

- Determine the moisture content of the soil before starting.

  Wet Soil - Wet soil will “ball-up” in the rotor and tines making tilling extremely difficult. It is recommended to wait for the soil to dry out before starting to work the soil.

- Sandy soils normally can be worked better than heavy clay or loam soils.

- When tilling hard or compacted soils, it is recommended that additional passes be used when working.

- Always remove heavy crop cover, all grass and weeds to prevent rotor plugging.

- The rotation of the Tines propel the machine in the forward direction. Always use the tractor transmission to control the speed of forward travel.

- Always disengage the PTO control and raise the machine out of the ground before depressing the master clutch on the tractor.

- Use low gear on the tractor to start the job. Increase the ground speed of forward travel only as the quality of the job and power available will allow.

- If PTO slip clutch begins slipping, reduce the ground speed or slightly raise the implement of the ground.

TRANSPORTING

Requirements

Comply with federal, state, local and provincial laws regarding the transport of farm equipment on public roadways.

⚠ WARNING

AVOID INJURY OR DEATH

- **Disengage PTO for road travel.**
- **Keep PTO shields and all guards in place**
- **Keep bystanders away.**
- **Do not allow riders.**
- **Do not exceed 20 mph (32 km/h).**
- **Always use hazard flashers on the tractor when transporting unless prohibited by law.**
- **Always follow local regulations when transporting on public roadways. Check with your local authorities.**

IMPORTANT

Never exceed 20 mph (32 kph).

⚠ WARNING

Use of an unapproved hitch or tractor can result in loss of control, leading to serious injury or death.

Tractor and hitch must have the rated capacity to tow equipment.

Verify that the tractor is approved for transporting the equipment and that the equipment is securely attached to the tractor.

Verify safety chain is installed and properly connected before transporting equipment (if applicable).

Verify that the SMV (Slow Moving Vehicle) emblem, all lights and reflectors are clean and visible.

Transporting Guidelines

The ratio of the tractor / tow vehicle weight to the loaded equipment weight plays an important role in defining acceptable travel speed.

TRAVEL SPEED - Acceptable travel speed.

WEIGHT RATIO - Weight of fully equipped or loaded implement(s) relative to weight of tractor / tow vehicle.

TRAVEL SPEED	WEIGHT RATIO
Up to 20 mph (32 kph)	1 to 1 (or less)
Up to 10 mph (16 kph)	2 to 1 (or less)
DO NOT TOW	More than 2 to 1

With the rotary tiller connected to the tractor, enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Fully raise the rotary tiller into the transport position. (See the tractor's operator's manual for detailed information on operating the three-point hitch.)

Move the tractor and rotary tiller to the work site.

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MAINTENANCE

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Farm King

TROUBLESHOOTING

Chart

⚠ WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator and Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

NOTE: If a problem is encountered that is difficult to solve, even after having read through this troubleshooting section, please call your local distributor, dealer or factory. Before you call, please have this Operator And Parts Manual and the serial number of your machine at hand.

PROBLEM	CAUSE	CORRECTION
Rotor won't turn.	Slip clutch slipping.	Check that clutch is engaged or replace friction plates.
	PTO clutch slipping.	Set PTO clutch. See tractor manual.
	Broken drive chain.	Repair or replace chain.
Poor soil tilling.	3-point hitch system not in float.	Place 3-point hitch in float. See tractor's operator's manual.
	Travel speed too fast.	Reduce travel speed.
	Hard soil	Reduce travel speed and make additional passes.
	Machine not level.	Adjust three-point upper link and level rotary tiller.
	Worn tines.	Replace tines as needed.
	Loose or missing tines.	Tighten or replace tines as needed.
Uneven soil tilling.	Travel speed too fast.	Reduce travel speed.
	Machine not level.	Adjust three-point upper link and level rotary tiller.
	Drag shield not adjust properly.	Adjust drag shield.

SERVICE SCHEDULE

Maintenance Intervals

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Rotary Tiller.

⚠ WARNING

Instructions are necessary before operating or servicing equipment. Read and understand the Operator and Parts Manual and safety signs (decals) on equipment. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

#	DESCRIPTION	SERVICE PROCEDURES						
		Check	Clean	Lube	Change	Adjust	Drain	Locations
Daily Maintenance (or every 8 hours)								
1	PTO Cross And Bearings	•		•				
Bi-Weekly (or every 20 hours)								
2	PTO Telescoping Tubes			•				
3	Slip Clutch Connector			•				
4	PTO Quick Disconnect			•				
Weekly (or every 40 hours)								
5	PTO Driveline			•				
6	Gear Box Oil Level	•		•				
7	Chain Case			•				
Annually (or every 80 hours)								
8	Rotor Bearings			•				
9	Chain Drive Bearing			•				
10	Gear Box Oil				•		•	

LUBRICATION

Recommendations

Always use a good quality multi-purpose / lithium base grease when lubricating the equipment.

IMPORTANT

Do not over-grease bearings. Greasing too often can damage seals and lead to premature bearing failure.

- Always use a hand-held grease gun.
- Clean fitting before greasing, to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If fittings will not take grease, remove and clean thoroughly. Replace fitting if necessary.

Locations

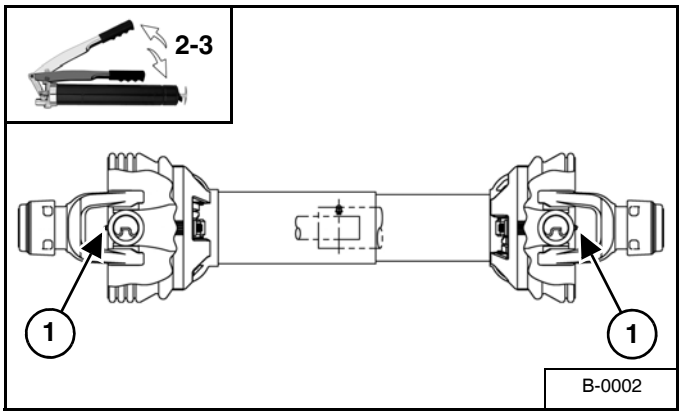
IMPORTANT

Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

Lubricate the following grease locations EVERY 8 HOURS:

NOTE: The following images may not show your exact PTO driveline but the procedure is correct.

Figure 18

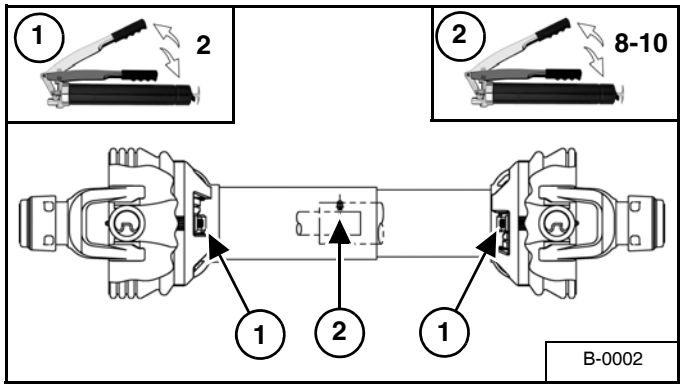


Apply two - three pumps of grease to the cross and bearings (Item 1) **[Figure 18]** on the PTO driveline.

Lubricate the following grease locations EVERY 20 HOURS:

NOTE: The following images may not show your exact PTO driveline as it appears but the procedure is correct.

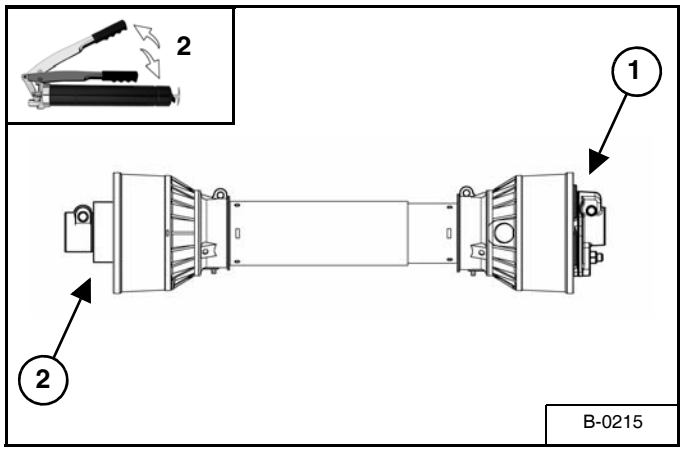
Figure 19



Apply two pumps of grease to the guard bushings (Item 1) **[Figure 19]**.

Apply eight - ten pumps of grease to the telescoping member (Item 2) **[Figure 19]**.

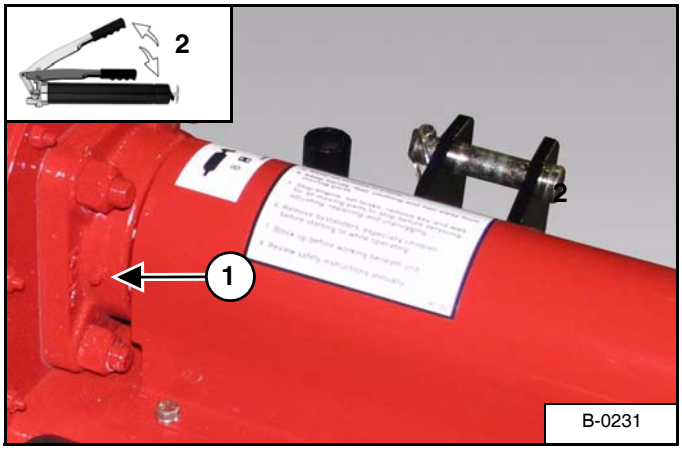
Figure 20



Apply two pumps of grease to the slip clutch (Item 1) and PTO quick disconnect (Item 2) **[Figure 20]**.

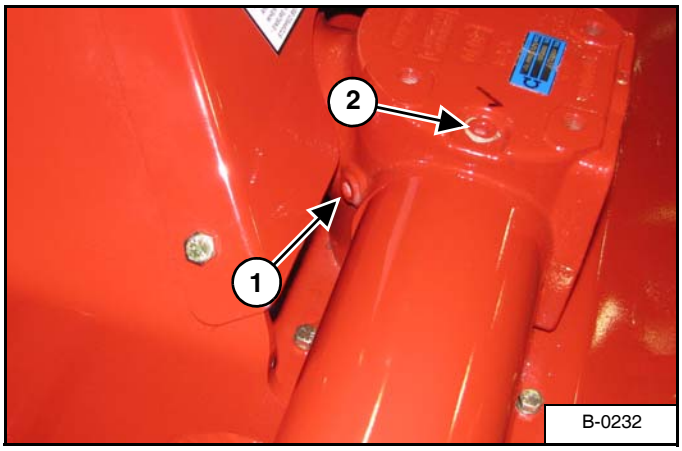
Lubricate the following grease locations EVERY 40 HOURS:

Figure 21



Apply two pumps of grease to the chain case drive bearing (Item 1) **[Figure 21]**.

Figure 22



Remove the side plug (Item 1) **[Figure 22]** and check gear box oil level. The oil level should be at the bottom of the plug opening.

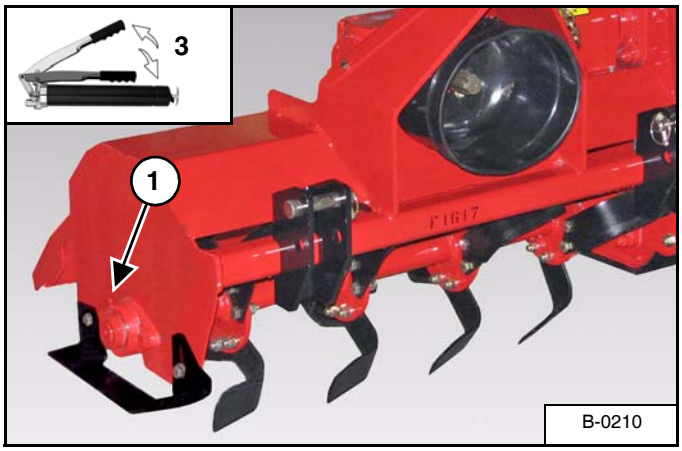
NOTE: Add 85W-90 gear oil if level is low.

If the oil level is low, remove the top plug (Item 2) **[Figure 22]**. Add oil until the oil starts to run out of the side plug opening. Install plugs.

NOTE: If oil level is low look for signs of a leak and repair as necessary.

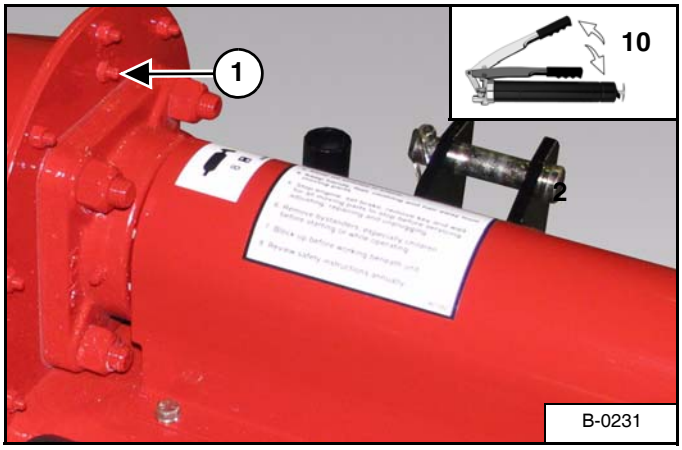
Lubricate the following grease locations EVERY 80 HOURS:

Figure 23



Apply 3 pumps of grease to the rotor bearing (Item 1) **[Figure 23]** (both ends).

Figure 24



Apply ten pumps of grease to the chain case (Item 1) **[Figure 24]**.

TINE REPLACEMENT

Tine Removal

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

⚠ WARNING

AVOID INJURY OR DEATH

Securely block up the implement before working underneath.

⚠ WARNING

Always wear proper hand and eye protection when serving the implement.

Park the tractor and implement on a flat level surface.

Fully raise the rotary tiller.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Place blocking under the rotary tiller. Position blocking under skid shoes, allowing access to tines.

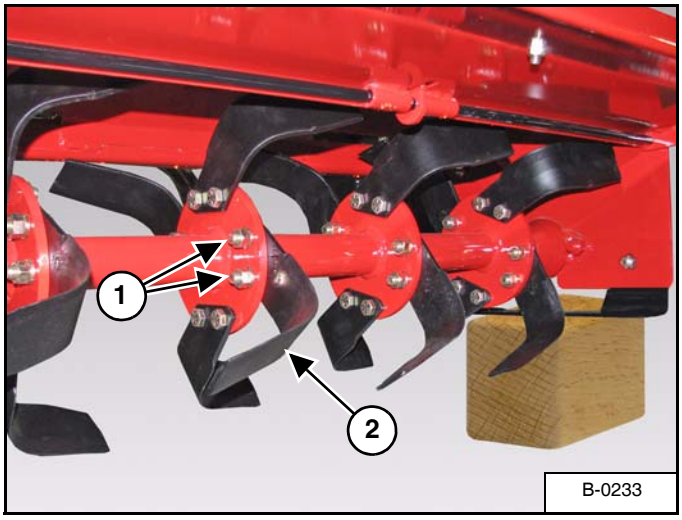
Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Lower the rotary tiller onto the blocking.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Fully raise and lock the drag shield in the raised position.

Figure 25



Remove the two bolts and nuts (Item 1) and tine (Item 2) **[Figure 25]**.

Position the replacement tine in proper orientation of the tine removed. Install two bolts and nuts. Tighten bolts.

Repeat procedure as needed until all desired tines have been replaced.

Lower the drag shield.

Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Fully raise the rotary tiller.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Remove blocking from under the skid shoes.

Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Lower the rotary tiller onto the blocking.

GEARBOX

Oil Change

⚠ WARNING

AVOID INJURY OR DEATH

Before you leave the operator's position:

- **Always park on a flat level surface.**
- **Place all controls in NEUTRAL.**
- **Engage the park brake.**
- **Stop the engine and remove the key.**
- **Wait for all moving parts to stop.**

⚠ WARNING

AVOID INJURY OR DEATH

Securely block up the implement before working underneath.

⚠ WARNING

Always wear proper hand and eye protection when serving the implement.

! IMPORTANT

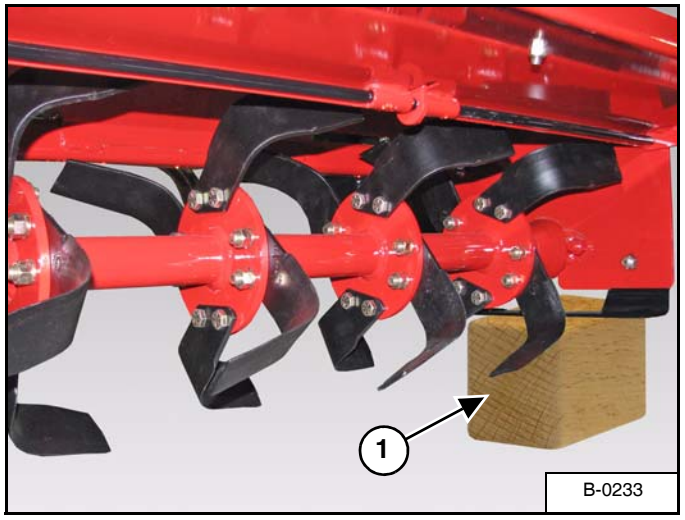
Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

Park the tractor and implement on a flat level surface.

Fully raise the rotary tiller.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Figure 26



Place blocking (Item 1) **[Figure 26]** under the rotary tiller. Position blocking under skid shoes (both sides), allowing access to tines.

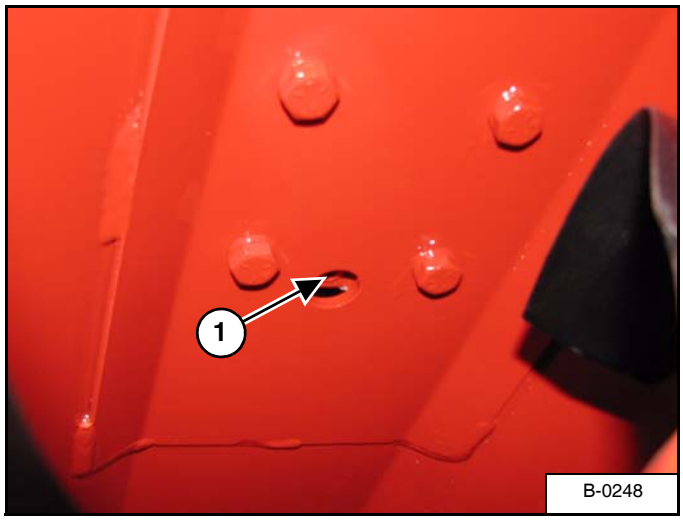
Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

Lower the rotary tiller onto the blocking.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.)

Fully raise and lock the drag shield in the raised position.

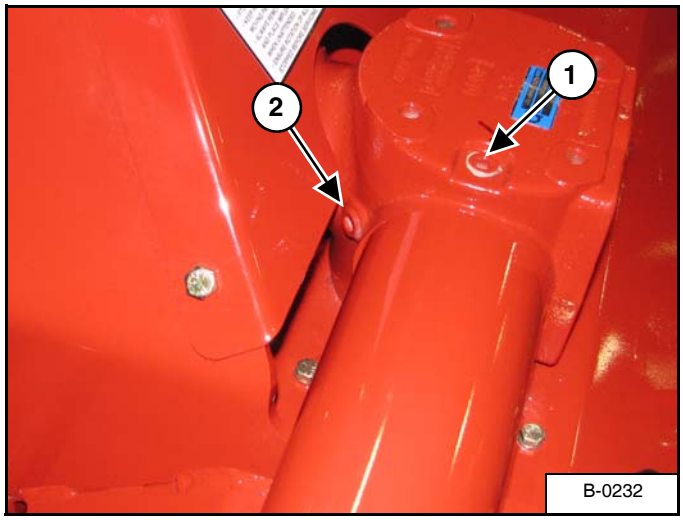
Figure 27



Locate the drain plug (Item 1) **[Figure 27]** under the gearbox. Remove the plug and drain the oil into a collection container.

Once the oil is drained, install the drain plug.

Figure 28



Remove the fill plug (Item 1) **[Figure 28]**.

Remove the plug (Item 2) **[Figure 28]** on the side of the gearbox.

Add one qt. (0.85 l) of 85W-140 to the gearbox or until the oil begins to flow out of the hole on the side of the gearbox.

Install the plug (Item 2) **[Figure 28]** on the side of the gearbox.

Install the fill plug (Item 1) **[Figure 28]**.

SHEAR PIN

Shear Pin Replacement (If Equipped)

Park the tractor and implement on a flat level surface.

Fully lower the rotary tiller.

Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

Disconnect the PTO driveline.

Carefully remove remaining shear bolt using a hammer and punch if necessary. Be careful not to enlarge the holes.

Install the new shear bolt and tighten. (6 mm & 40 mm, Grade 5)

SLIP CLUTCH

Slip Clutch Lining Replacement

NOTE: The PTO shafts are shipped with the slip clutch disengaged.

Disengage The Clutch

NOTE: There are four socket set screws on the inside of the clutch assembly, which are turned out as far as they go to engage the clutch.

Turn the four socket set screws on the inside of the clutch assembly all the way in to disengage the clutch.

Replacing Clutch Linings

Remove the outside bolts from the clutch assembly and replace the clutch linings.

NOTE: When re-tightening the bolts, stop when the clutch spacer starts to touch the clutch plates. You should be able to just move the spacer by hand when you have the correct bolt torque.

Engage The Clutch

Turn the four socket set screws on the inside of the clutch assembly all the way out to engage the clutch.

Slip Clutch Maintenance

NOTE: Before first use or after storage of more than one month, the clutch should be checked.

1. Turn the four socket set screws on the inside of the clutch assembly all the way in to disengage the clutch.

2. Enter the operator's position. (See "Entering The Operator's Position" on page 25.) Start the engine.

3. Run the PTO at low idle to slip the clutch linings. This will help remove the dirt, corrosion, and surface gloss from the clutch plates and also ensure that the linings are loose.

4. Stop the engine and leave the operator's position. (See "Leaving The Operator's Position" on page 25.) Make sure the PTO driveline and all rotating components have come to a complete stop before leaving the operator's position.

5. Turn the four socket set screws on the inside of the clutch assembly all the way out to engage the clutch

NOTE: Normally the clutch will slip at a 20% higher torque after the "run in" than before.

6. Check the temperature of the clutch after running for 20 minutes and every 8 hours after that.

NOTE: If the clutch is hot to the touch or smokes, check that the outside bolts are correctly tightened as explained in slip clutch section. If clutch still slips, linings may have to be replaced.

SAFETY SIGN (DECAL) INSTALLATION

Procedure

IMPORTANT

When replacing safety signs (decals), the temperature must be above 10° C (50° F).

- Remove all portions of the damaged safety sign (decal).
- Thoroughly clean the area with glass cleaner. Removing all adhesive residue.
- Allow the area to dry completely before installing the new safety sign (decal).
- Position the safety sign (decal) in the correct location. Remove a small portion of the backing paper on the safety sign (decal).
- Press on the safety sign (decal) where the backing paper has been removed.
- Slowly remove the remaining backing paper, pressing on the safety sign (decal) as the backing paper is removed.
- Using the backing paper, pressing firmly, move the backing paper over the entire safety sign (decal) area.

NOTE: Small air pockets can be pierced with a pin and smoothed out using the piece of the backing paper.

STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Farm King rotary tiller for an extended period of time. Below is a list of items to perform before storage.

IMPORTANT

DO NOT permit children to play on or around the stored machine.

- Thoroughly clean the equipment.
- Lubricate the equipment.
- Change gear box oil.
- Inspect the hitch and all welds on the equipment for wear and damage.
- Check for loose hardware, missing guards, or damaged parts.
- Check for damaged or missing safety signs (decals). Replace if necessary.
- Replace worn or damaged parts.
- Touch up all paint nicks and scratches to prevent rusting.
- Place the equipment in a dry protected shelter.

NOTE: If a dry protected shelter is not available, cover with a waterproof tarp and tie down securely.

- Place the equipment flat on the ground.
- Place planks inder support stand if required.

Return To Service

After the Farm King rotary tiller has been in storage, it is necessary to follow a list of items to return the equipment to service.

- Be sure all shields and guards are in place.
- Lubricate the equipment.
- Connect to a tractor and operate equipment, verify all functions operate correctly.
- Check for leaks. Repair as needed.

PARTS IDENTIFICATION

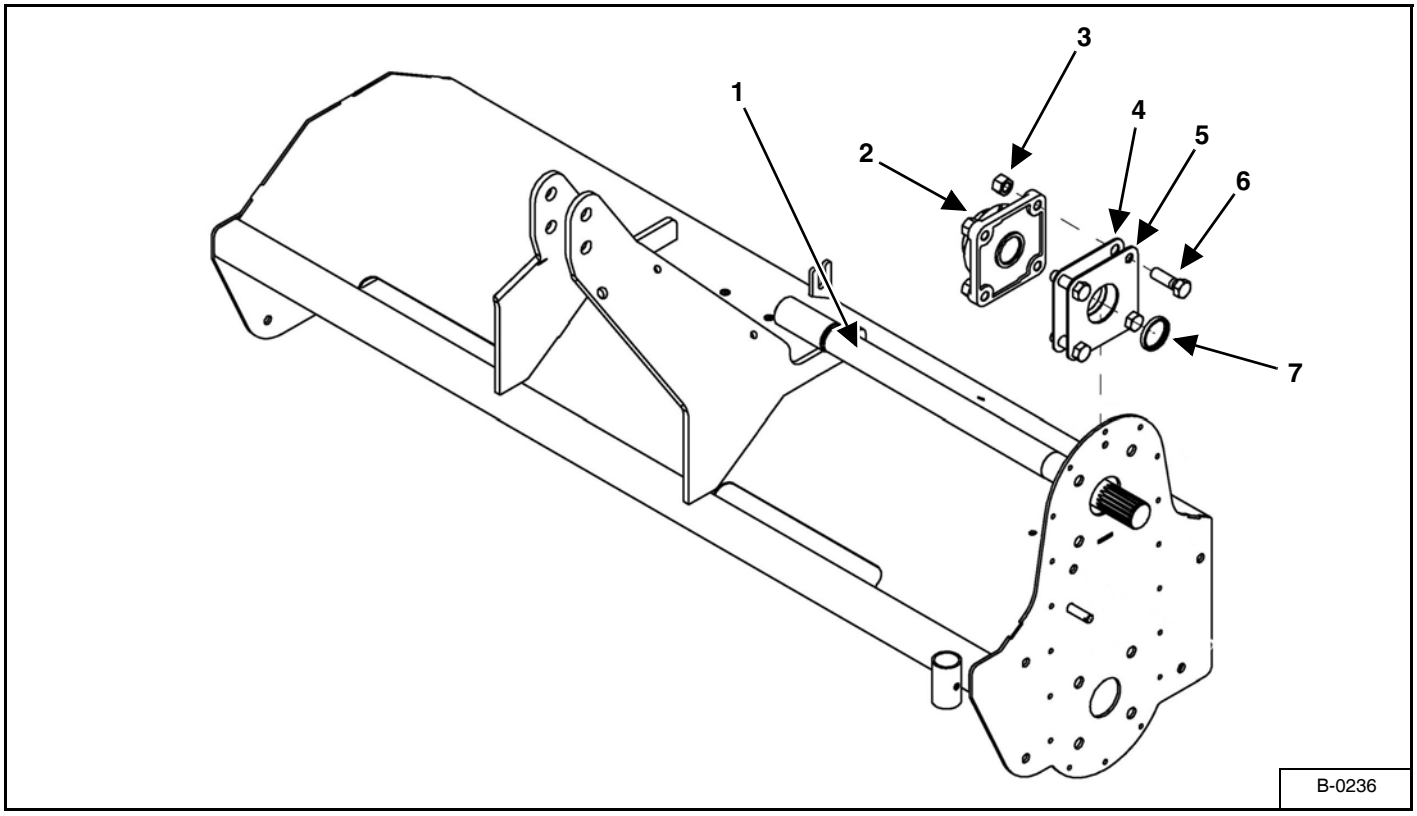
GENERAL INFORMATION 53
UPPER SHAFT GROUP 53
DECK GROUP 56
ROTOR GROUP 60
PTO DRIVELINE (SLIP CLUTCH) 61
PTO SHIELD (SLIP CLUTCH) 61
PTO SLIP CLUTCH 62
PTO DRIVELINE (SHEAR PIN) 63
PTO SHIELD (SHEAR PIN) 63
PTO SHEAR PIN 64

Farm King

GENERAL INFORMATION

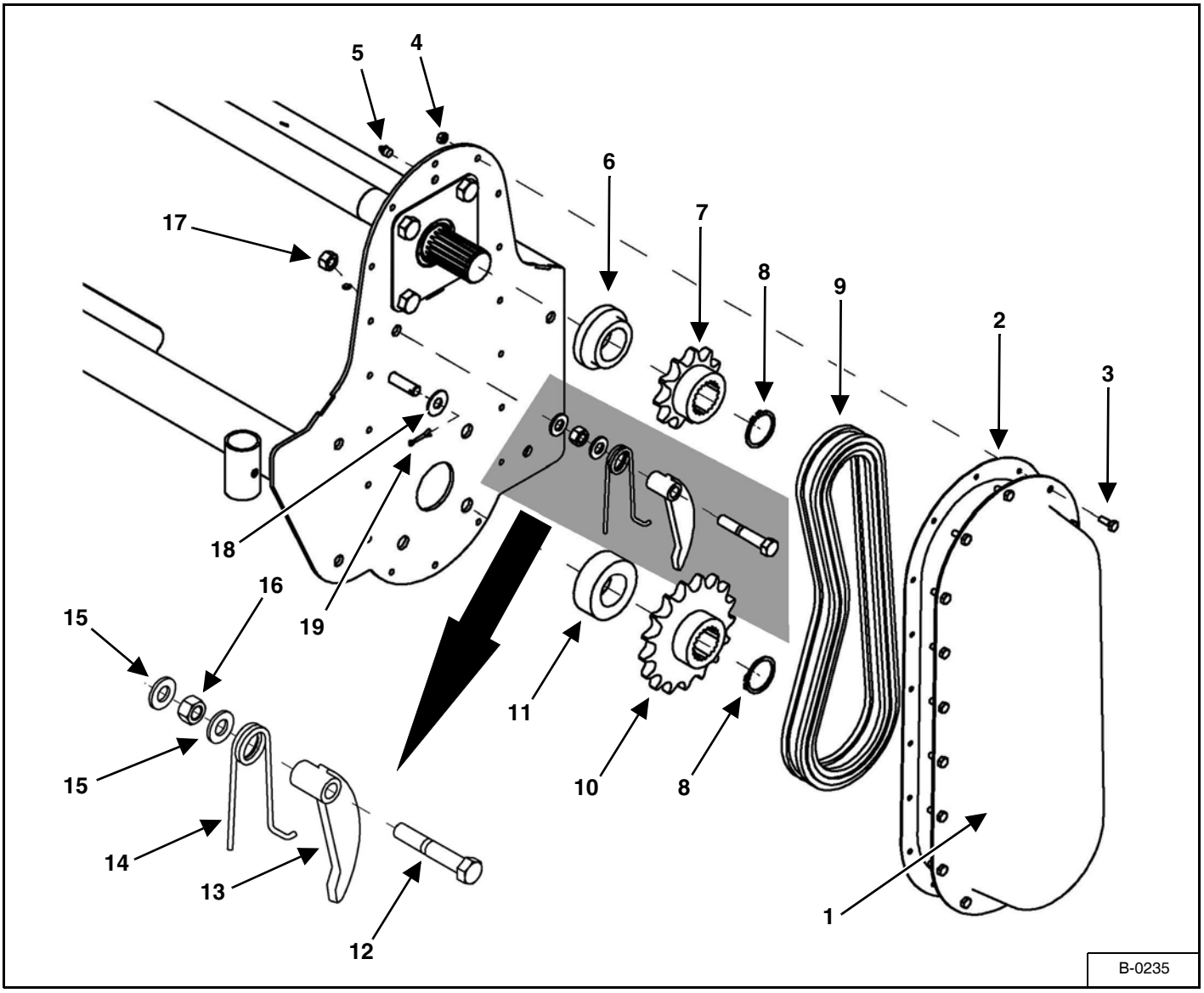
The parts identification section list descriptions, part numbers and quantities for the 25 Series Rotary Tillers. Contact your Farm King dealer for additional rotary tiller parts information.

UPPER SHAFT GROUP



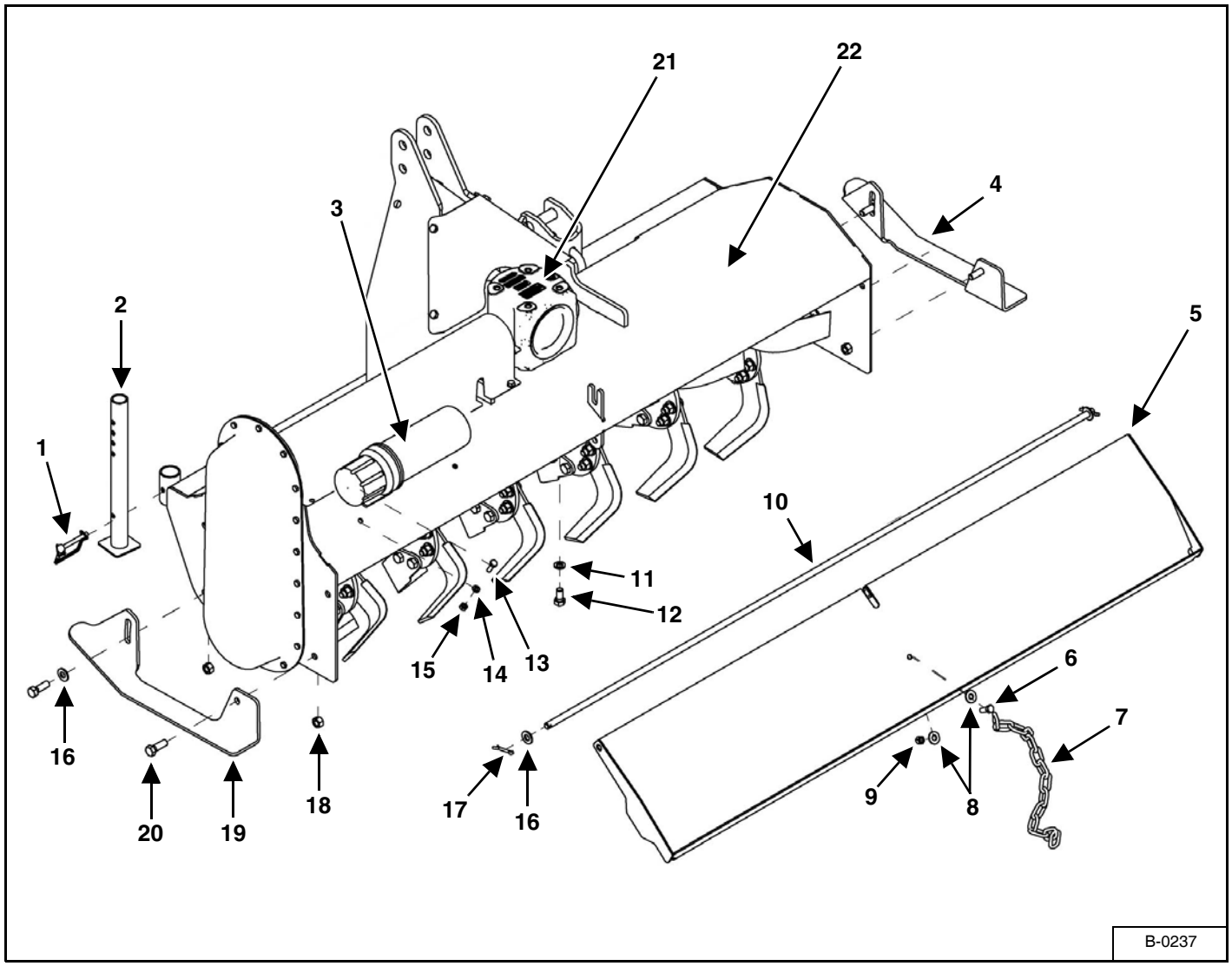
ITEM	PART NUMBER	DESCRIPTION	QTY
1	914229	WELDMENT, SHAFT UPPER 40” TILLER	1
	913982	WELDMENT, SHAFT UPPER 48” TILLER	1
	914224	WELDMENT, SHAFT UPPER 60” TILLER	1
2	967363	BEARING, 4-BOLT FLANGE 1 5/8”	1
3	812482	LOCK NUT, 5/8” PLATED	4
4	982006422	OIL SEAL PLATE	1
5	TG103	GASKET, 4 BOLT FLANGE	1
6	84299	BOLT, 5/8” x 2” HEX GRADE 5 PLATED	4
7	912303601	OIL SEAL, (CR16046)	1

CHAIN DRIVE GROUP



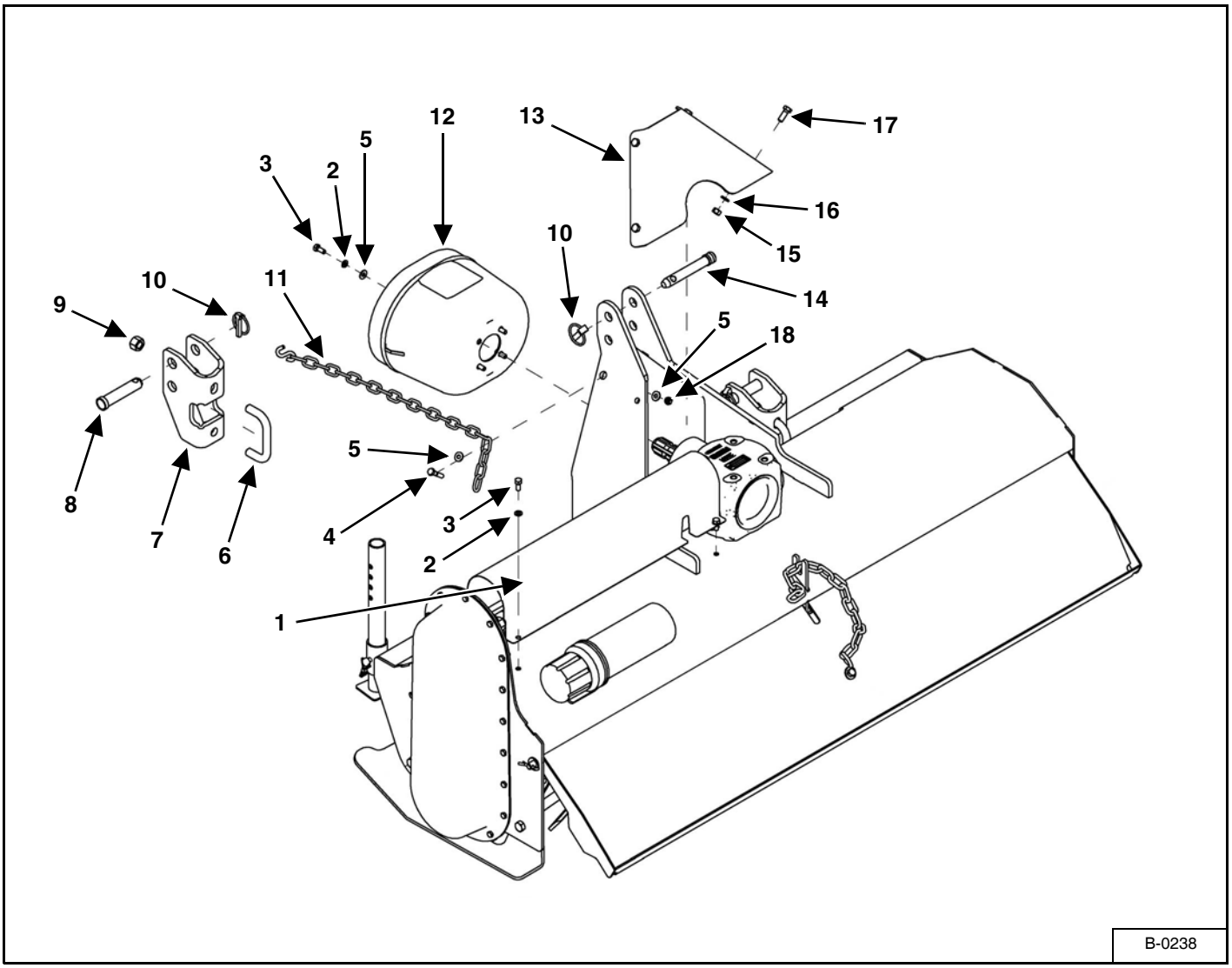
ITEM	PART NUMBER	DESCRIPTION	QTY
1	903209	CHAIN GUARD	1
2	TG101	GASKET, CHAIN COVER	1
3	81525	BOLT, 1/4” x 3/4” HEX PLATED	18
4	84498	LOCK NUT, 1/4” PLATED	18
5	967164	GREASE ZERK, DRIVE - IN	1
6	914332	SPACER, TOP SPROCKET	1
7	906845	SPROCKET, H80B11	1
8	912301557	RETAINER RING, 1 5/8”	2
9	913835	ROLLER CHAIN, 80H x 42 PITCHES	1
10	913836	SPROCKET, H80B17	1
11	959220	SPACER, TOP SPROCKET 1.07” LG x 1.645” ID x 0.3” OD	1
12	81627	BOLT, 1/2” x 3” HEX PLATED	1
13	967377	CHAIN TENSIONER WELDMENT, 0.375”	1
14	982005711	TENSION SPRING	1
15	84048	WASHER, FLAT 1/2” SAE PLATED	2
16	81636	NUT, 1/2” HEX PLATED	1
17	812364	LOCK NUT, 1/2” PLATED	1
18	981616	WASHER, FLAT 1/2” STD PLATED	1
19	9812430	COTTER PIN, 1/8” x 1” PLATED	1

DECK GROUP



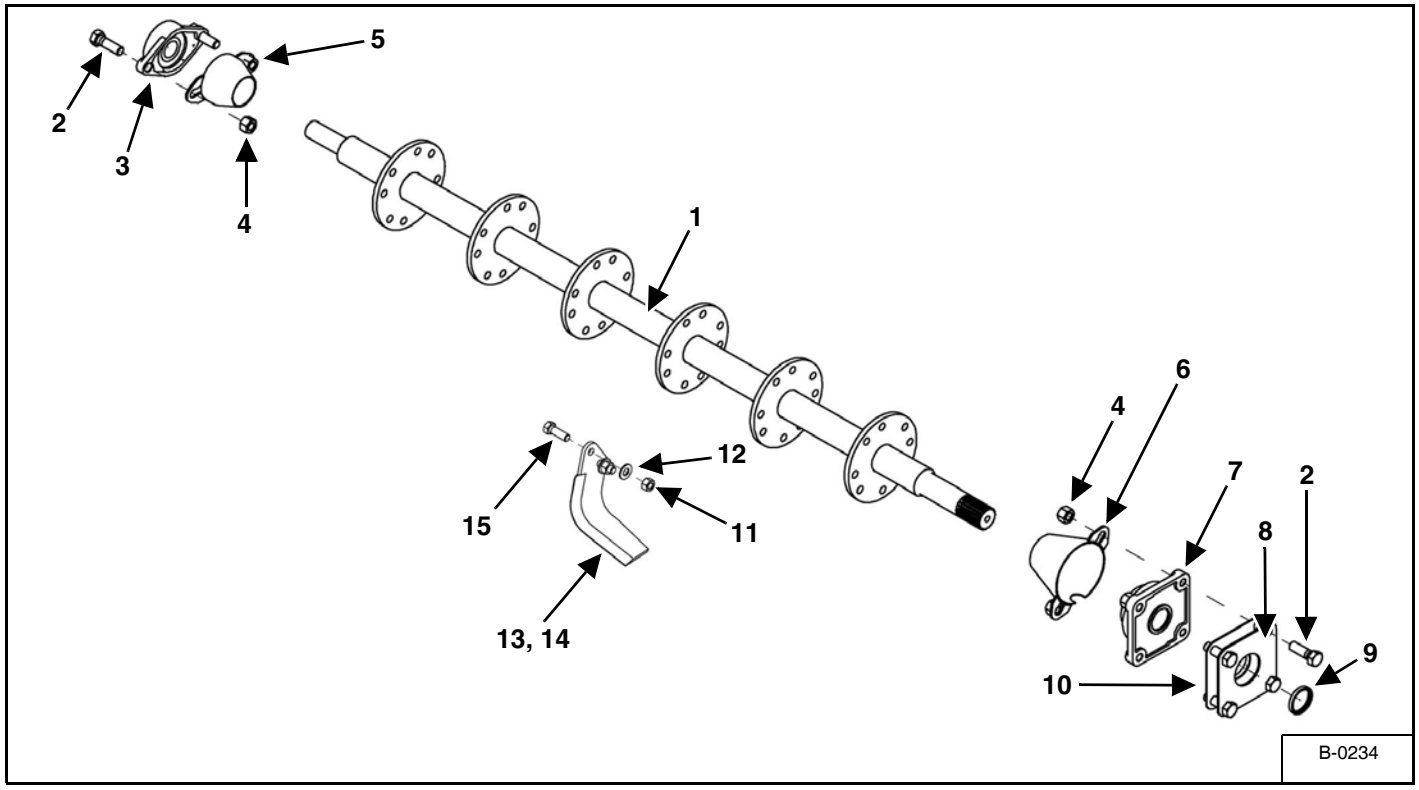
ITEM	PART NUMBER	DESCRIPTION	QTY
1	912301660	SNAPPER CLIP	1
2	913990	STAND, WELDMENT	1
3	909277	MANUAL HOLDER, 3 1/2” x 12”	1
4	913951	SHOE, DEPTH GAUGE, RH	1
5	914232	DRAG GUARD, WELDMENT 40”	1
	913910	DRAG GUARD, WELDMENT 48”	1
	913999	DRAG GUARD, WELDMENT 60”	1
6	86170	BOLT, 3/8” x 1” HEX GRADE 5 PLATED	1
7	982000471	CHAIN, 1/4” x 14 LINK	1
8	84000	WASHER, FLAT 7/16” PLATED	2
9	812363	LOCK NUT, 3/8” PLATED	1
10	909710	HINGE ROD, DRAG SHIELD	1
	909711	HINGE ROD, DRAG SHIELD	1
	909712	HINGE ROD, DRAG SHIELD	1
11	81637	LOCK WASHER, 1/2” PLATED	4
12	81619	BOLT, HEX 1/2” x 1” PLATED	4
13	812026	BOLT, HEX 5/16” x 1” PLATED	2
14	81569	LOCK WASHER, 5/16" PLATED	2
15	81568	NUT, HEX 5/16” PLATED	2
16	84048	WASHER, FLAT 1/2” SAE PLATED	4
17	9812433	COTTER PIN, 3/16” x 1 1/2”	2
18	812364	LOCK NUT, 1/2” PLATED	4
19	913956	SHOE, DEPTH GAUGE, LH	1
20	84277	HEX BOLT, 1/2” x 1 1/2” PLATED	4
21	913830	GEARBOX, 2030 BONDIOLI	1
22	914227	DECK WELDMENT, 40”	1
	913828	DECK WELDMENT, 48”	1
	913997	DECK WELDMENT, 60”	1

DECK GROUP



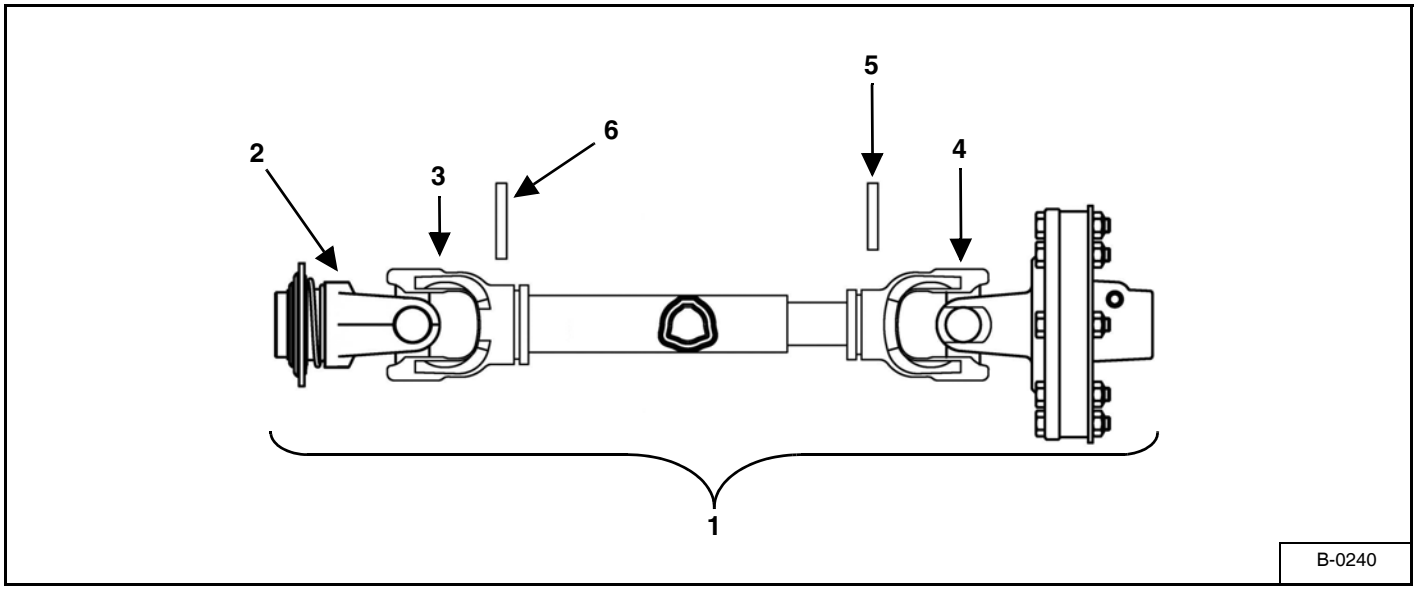
ITEM	PART NUMBER	DESCRIPTION	QTY
1	914258	GUARD, UPPER SHAFT 40” TILLER	1
	914257	GUARD, UPPER SHAFT 48” TILLER	1
	914242	GUARD, UPPER SHAFT 60” TILLER	1
2	81569	LOCK WASHER, 5/16” PLATED	8
3	81549	BOLT, HEX 5/16” x 3/4” PLATED	8
4	81553	BOLT, HEX 5/16” x 1 1/2” PLATED	1
5	81546	WASHER, FLAT 5/16” PLATED	6
6	913980	U-BOLT, 0.62” x 2.19” x 3.62”	2
7	913977	BRACKET, LOWER THREE POINT HITCH	2
8	967361	CLEVIS PIN, 7/8” x 4”	2
9	812482	LOCK NUT, 5/8” PLATED	4
10	965911	LYNCH PIN, 7/16”	3
11	909703	CHAIN ASSEMBLY, PTO HOLDER	1
12	912300165	SAFETY CONE	1
13	913931	BRACKET,HITCH SUPPORT	1
14	965807	PIN, TOP LINK CATEGORY 1	1
15	81592	NUT, HEX 3/8” PLATED	4
16	81593	WASHER, LOCK 3/8” PLATED	4
17	86170	BOLT, HEX 3/8” x 1” GRADE 5 PLATED	4
18	812362	LOCK NUT, 5/16” PLATED	1

ROTOR GROUP



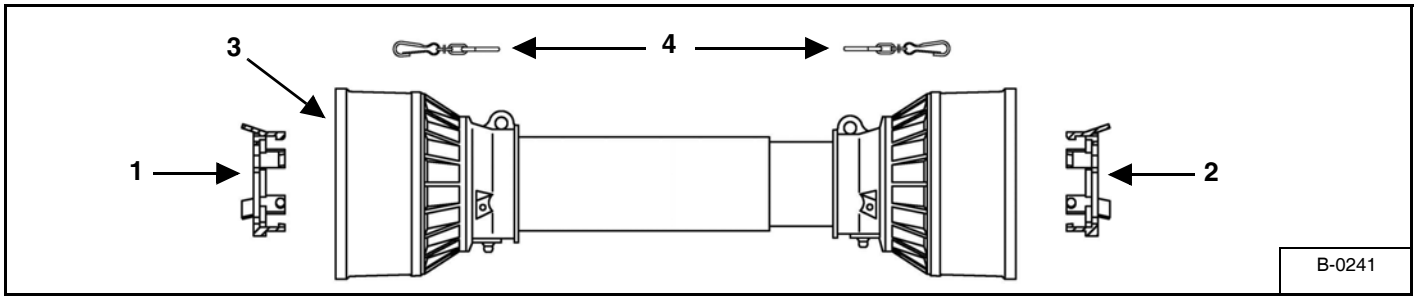
ITEM	PART NUMBER	DESCRIPTION	QTY
1	967354	ROTOR SHAFT, WELDMENT 44.25”	1
	967355	ROTOR SHAFT, WELDMENT 52.25”	1
	914330	ROTOR SHAFT, WELDMENT 60”	1
2	84299	BOLT, HEX 5/8” x 2” GRADE 5 PLATED	6
3	912300131	BEARING, 2 BOLT FLANGE 1 1/4”	1
4	812482	LOCK NUT, 5/8” PLATED	6
5	983006300	BEARING COVER, WELDMENT 0.3.5” x 2.38”	1
6	967353	BEARING COVER, 3.5” LG x 4.63” OD	1
7	967363	BEARING, 4 BOLT FLANGE 1 5/8”	1
8	TG103	GASKET, 4 BOLT FLANGE	1
9	912303601	OIL SEAL (CR16046)	1
10	982006422	OIL SEAL PLATE	1
11	812765	NUT, HEX 1/2” PLATED	48
12	9812767	LOCK WASH, 1/2” PLATED	48
13	967483	TINE, RIGHT 40” TILLER	8
		TINE, RIGHT 48” TILLER	10
		TINE, RIGHT 60” TILLER	12
14	967484	TINE, LEFT 40” TILLER	8
		TINE, LEFT 48” TILLER	10
		TINE, LEFT 60” TILLER	12
15	812763	BOLT, HEX 1/2” x 1 1/2” PLATED	48

PTO DRIVELINE (SLIP CLUTCH)



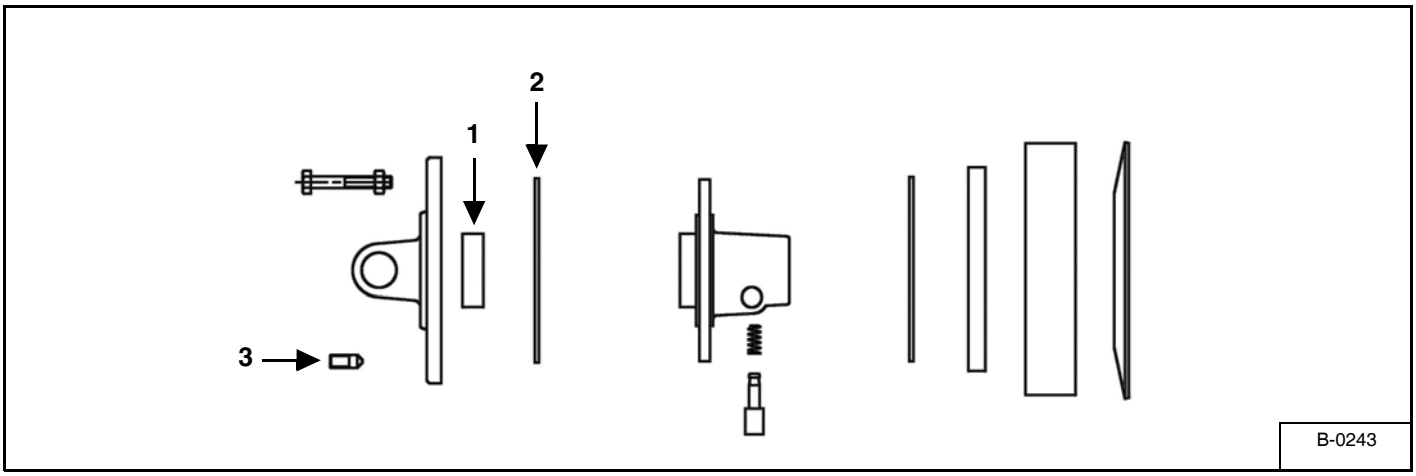
ITEM	PART NUMBER	DESCRIPTION	QTY
1	F0356	PTO DRIVELINE, SLIP CLUTCH, COMPLETE	1
2	907290	YOKE, #2 / S2 / G2 RT BALL 1 3/8” Z6 (R07)	1
3	920 - 004	YOKE, #2 OUTER TUBE	1
4	920 - 003	YOKE, #2 INNER TUBE	1
5	930 - 109	FLEXIBLE ROLL PIN, #1, 8 x 45 MM	1
6	936351	FLEXIBLE ROLL PIN, #3/4, 8 x 55 MM	1

PTO SHIELD (SLIP CLUTCH)



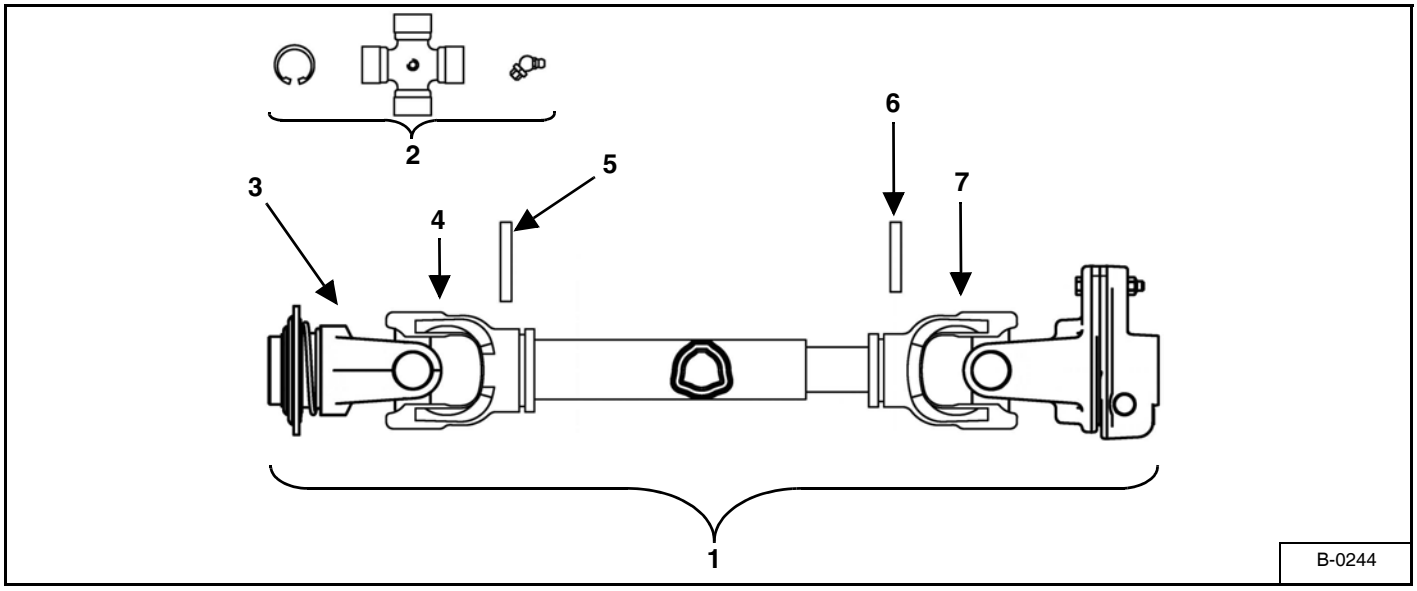
ITEM	PART NUMBER	DESCRIPTION	QTY
1	920 - 013	OUTER SHIELD SUPPORT	1
2	920 - 015	INNER SHIELD SUPPORT	1
3	936300	OUTER SHIELD CONE	1
4	936402	SHIELD CHAIN, W / S-HOOK (500 MM)	2

PTO SLIP CLUTCH



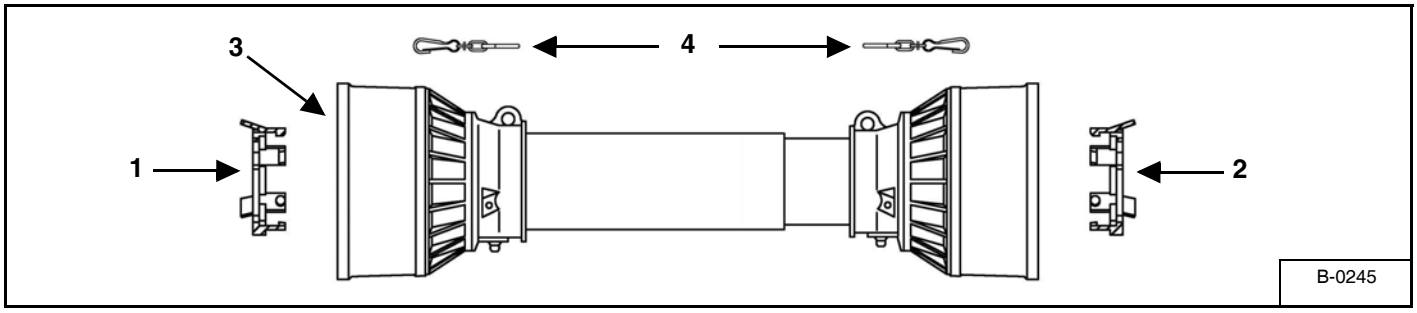
ITEM	PART NUMBER	DESCRIPTION	QTY
1	966223	BUSHING, FF / FT / FV / FR CLUTCH	1
2	936340	CLUTCH LINING, FD1 / FT - FV22	2
3	936512	SET SCREW, M10 x 25 x 1.5 (cl10.9)	1

PTO DRIVELINE (SHEAR PIN)



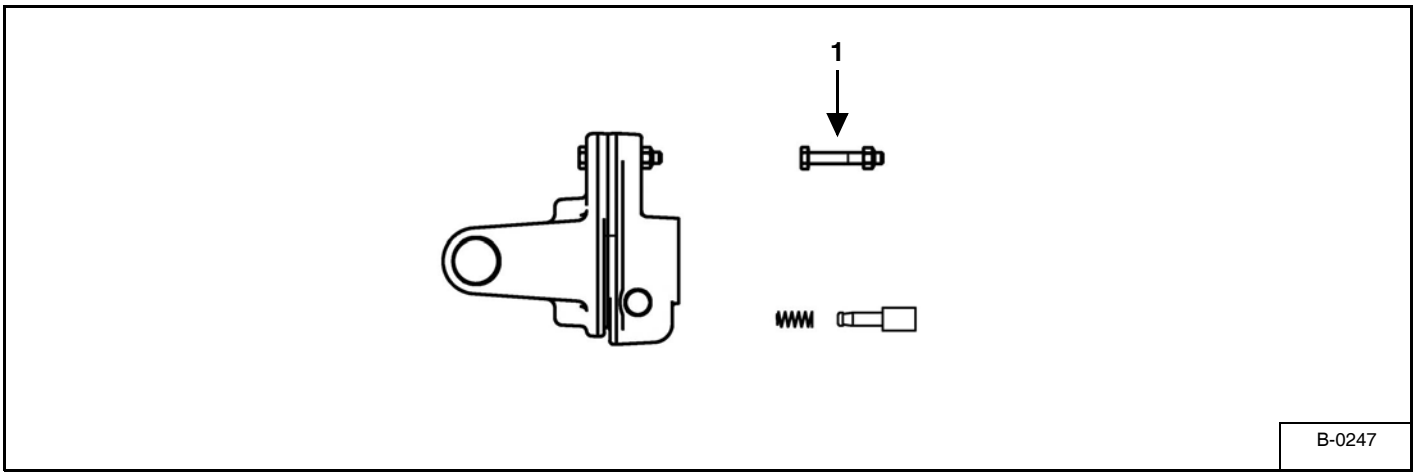
ITEM	PART NUMBER	DESCRIPTION	QTY
1	F0357	PTO DRIVELINE, SLIP CLUTCH, COMPLETE	1
2	920 - 002	CROSS KIT, #2	1
3	907290	YOKE, #2 / S2 1 3/8” Z6 BALL	1
4	920 - 004	YOKE, #2 OUTER TUBE	1
5	930 - 109	FLEXIBLE ROLL PIN, #1, 8 x 45 MM	1
6	936351	FLEXIBLE ROLL PIN, #3/4, 8 x 55 MM	1
7	920 - 003	YOKE, #2 INNER TUBE	1

PTO SHIELD (SHEAR PIN)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	920 - 013	OUTER SHIELD SUPPORT	1
2	920 - 015	INNER SHIELD SUPPORT	1
3	936300	OUTER SHIELD CONE	1
4	936402	SHIELD CHAIN, W / S-HOOK (500 MM)	2

PTO SHEAR PIN



ITEM	PART NUMBER	DESCRIPTION	QTY
1	920 - 020	SHEAR PIN & NUT	1

SPECIFICATIONS

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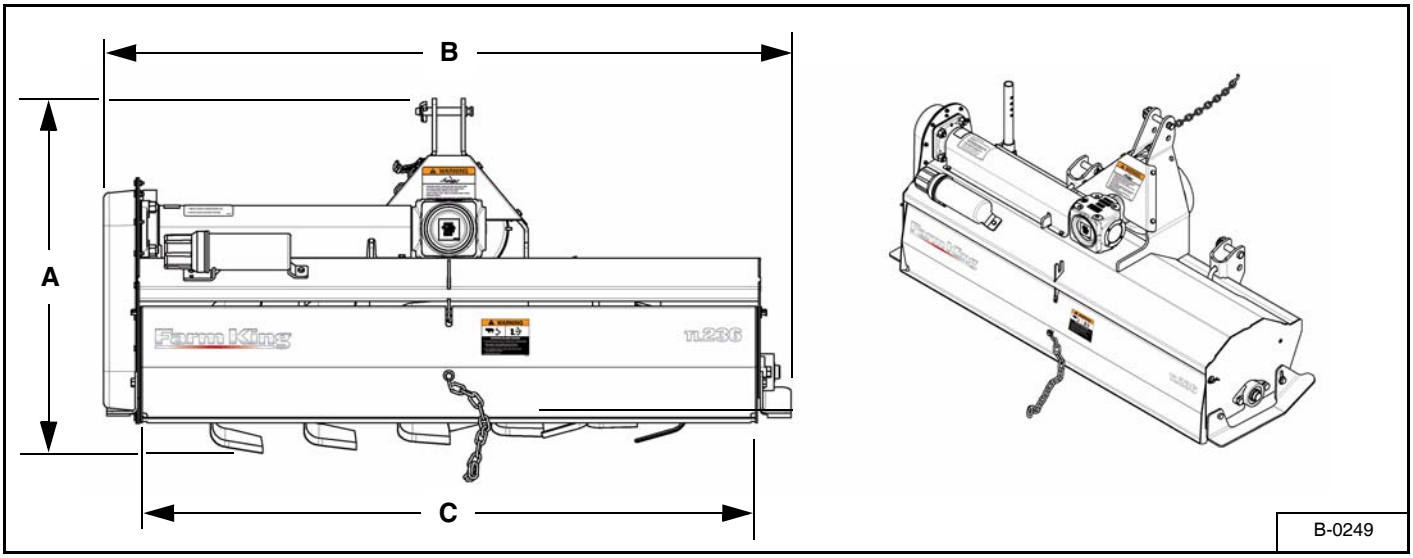
Farm King

SPECIFICATIONS

Dimensions



DESCRIPTION	TL236	TL245	TL254
Height **(A)**	34 in. (866 mm)	34 in. (866 mm)	34 in. (866 mm)
Overall Width **(B)**	46.5 in. (1181 mm)	54.5 in. (1384,3 mm)	66.5 in. (1689 mm)
Tillage Width **(C)**	36 in. (914,4 mm)	45 in. (1143 mm)	54 in. (1371,6 mm)

Performance

DESCRIPTION	TL236	TL245	TL254
Tractor HP	12 - 18	14 - 22	18 - 25
Weight (approximate)	385 lb. (175 kg)	418 lb. (190 kg)	477 lb. (190 kg)
Maximum PTO Speed	540 rpm	540 rpm	540 rpm
PTO Shaft	Slip Clutch	Slip Clutch	Slip Clutch
	Shear Pin	Shear Pin	Shear Pin
Drive Chain	#80H	#80H	#80H
Three-Point Hitch	Category I	Category I	Category I
Rotor Speed	239 rpm	239 rpm	239 rpm
Flanges / Tines	4 / 16	5 / 20	6 / 24
Tines Per Flange	4	5	6
Tine Size	0.25 x 2.25 in. (6,35 x 57,2 mm)	0.25 x 2.25 in. (6,35 x 57,2 mm)	0.25 x 2.25 in. (6,35 x 57,2 mm)
Gear Box Oil Capacity (85W-90)	128 oz. (1 US qt.) (0.85 l)	128 oz. (1 US qt.) (0.85 l)	128 oz. (1 US qt.) (0.85 l)

HARDWARE TORQUE VALUES

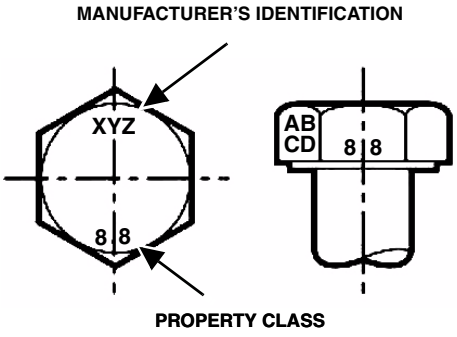
Metric Chart

NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

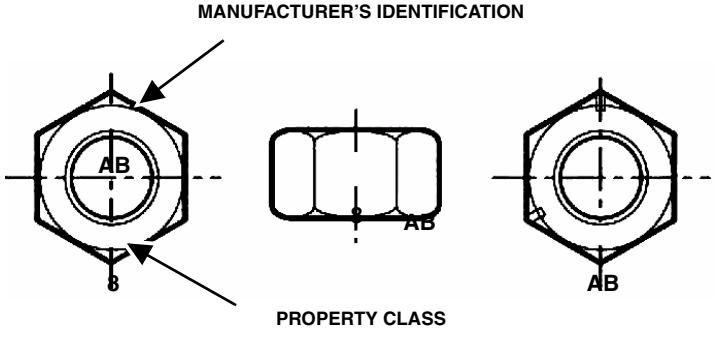
Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.**

Nominal Size	Class 5.8		Class 8.8		Class 10.9		Lock nuts
	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	Unplated	Plated W / ZnCr	CL.8 w/ CL. 8.8 Bolt
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	14 (124*)	18 (159*)	22 (195*)	28 (248*)	31 (274*)	40 (354*)	15 (133*)
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	30 (22)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	53 (39)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	131 (97)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	265 (195)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	458 (338)
NOTE: Torque values shown with * are inch pounds.							

Identification of Hex Cap Screws and Carriage Bolts - Classes 5 and up



Identification of Hex Nuts and Lock Nuts - Classes 5 and up



HARDWARE TORQUE VALUES (CONT'D)

Imperial Chart

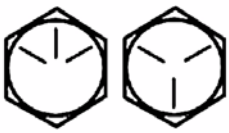
NOTE: Do not use the values listed in the charts if a different torque value or tightening procedure is specified in this manual for a specific application. Torque values listed are for general use only.

Use the following charts to determine the correct torque when checking, adjusting or replacing hardware. **Torque values are listed in newton-meters (inch* or foot pounds) for normal assembly applications.**

Nominal Size	SAE Grade 5		SAE Grade 8		LOCK NUTS			
	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Grade W / Gr. 5 Bolt	Grade W / Gr. 8 Bolt
1/4	6.2 (55*)	8.1 (72*)	9.7 (86*)	12.6 (112*)	13.6 (121*)	17.7 (157*)	6.9 (61*)	9.8 (86*)
5/16	13 (115*)	17 (149*)	20 (178*)	26 (229*)	28 (250*)	37 (324*)	14 (125*)	20 (176*)
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	26 (19)	35 (26)
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	41 (30)	57 (42)
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	61 (45)	88 (64)
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	88 (65)	125 (92)
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	122 (90)	172 (127)
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	217 (160)	306 (226)
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	350 (258)	494 (364)
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	523 (386)	739 (545)
NOTE: Torque values shown with * are inch pounds.								

Identification of Hex Cap Screws and Carriage Bolts

SAE GRADE 2 BOLTS



SAE GRADE 5 BOLTS

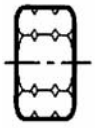
SAE GRADE 8 BOLTS

SAE GRADE 2 NUTS

SAE GRADE 2 NUTS

SAE GRADE 2 NUTS

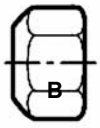
Identification of Hex Nuts and Lock Nuts



Grade A - No Notches

Grade B - One Circumferential Notch

Grade C - One Circumferential Notches



Grade A - No Mark

Grade B - Letter B

Grade C - Letter C

Grade A - No Marks

Grade B - Three Marks

Grade C - Six Marks

(Marks not always located at corners)

HYDRAULIC CONNECTION SPECIFICATIONS

O-Ring Fitting (Straight Thread)

Lubricate the O-ring before installing the fitting. Loosen the jam nut and install the fitting. Tighten the jam nut until the washer is tight against the surface.

O-ring Face Seal Connection

Figure 29

O-ring Face Seal Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4”	9/16” - 18	13 (18)
3/8”	11/16” - 16	22 (30)
1/2”	13/16” - 16	40 (54)
5/8”	1” - 14	60 (81)
3/4”	1-3/16” - 12	84 (114)
7/8”	1-3/16” - 12	98 (133)
1”	1-7/16” - 12	118 (160)
1-1/4”	1-11/16” - 12	154 (209)
1-1/2”	2” - 12	163 (221)

When the fitting is tightened, you can feel when the fitting is tight to eliminate leakage caused by under or over torqued fittings. Use petroleum jelly to hold the O-ring in position until the fittings are assembled.

Flare Fitting

Figure 30

Flare Fitting Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4”	7/16” - 20	13 (18)
5/16”	1/2” - 20	17 (23)
3/8”	9/16” - 18	22 (30)
1/2”	3/4” - 16	40 (54)
5/8”	7/8” - 14	60 (81)
3/4”	1-1/16” - 12	84 (114)
7/8”	1-3/16” - 12	98 (133)
1”	1-5/16” - 12	118 (160)
1-1/4”	1-5/8” - 12	154 (209)
1-1/2”	1-7/8” - 12	163 (221)
2”	2-1/2” - 12	252 (342)

Tighten until the nut makes contact with the seat. Use the chart **[Figure 30]** to find the correct tightness needed.

NOTE: If the fitting leaks, disconnect and inspect the seat area for damage.

Port Seal (O-ring Boss) Fitting

Figure 31

Port Seal And O-ring Boss Tightening Torque		
Tubeline O.D.	Thread Size	N•m (ft-lb)
1/4”	7/16” - 20	13 (18)
3/8”	9/16” - 18	22 (30)
1/2”	3/4” -1 6	40 (54)
5/8”	7/8” - 14	60 (81)
3/4”	1-1/16” - 12	84 (114)
7/8”	1-3/16” - 12	98 (133)
1”	1-5/16” - 12	118 (160)
1-1/8”	1-7/16” - 12	154 (209)
1-1/4”	1-5/8” - 12	163 (221)

NOTE: Port seal and nut, washer and O-ring (O-ring Boss) fittings use the same tightening torque valve chart.

If a torque wrench cannot be used, use the following method.

Tighten the nut until it just makes metal to metal contact, you can feel the resistance.

Tighten the nut with a wrench no more than one hex flat maximum.

Do not over tighten the port seal fitting.

NOTE: If a torque wrench cannot be used, use the hex flat tightening method as an approximate guideline.

NOTE: Port seal fittings are not recommended in all applications. Use O-ring boss fittings in these applications.

Tubelines And Hoses

Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

Replace hoses which show signs of wear, damage or weather cracked rubber.

Always use two wrenches when loosening and tightening hose or tubeline fittings.

WARRANTY

WARRANTY 73

Farm King

WARRANTY

Limited Warranty

BASE LIMITED WARRANTY

Farm King provides this warranty only to original retail purchasers of its products. Farm King warrants to such purchasers that all Farm King manufactured parts and components used and serviced as provided for in the Operator's Manual shall be free from defects in materials and workmanship for a period following delivery to the original retail purchaser of one (1) year. This limited warranty applies only to those parts and components manufactured by Farm King. Parts and components manufactured by others are subject to their manufacturer's warranties, if any.

Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Parts must be returned through the selling representative and the buyer must prepay transportation charges.

Farm King will not be responsible for repairs or replacements that are necessitated, in whole or part, by the use of parts not manufactured by or obtained from Farm King. Under no circumstances are component parts warranted against normal wear and tear. There is no warranty on product pump seals, product pump bearings, rubber product hoses, pressure gauges, or other components that require replacement as part of normal maintenance.

REPAIR PARTS LIMITED WARRANTY

Farm King warrants genuine Farm King replacement parts purchased after the expiration of the Farm King Limited Warranty, and used and serviced as provided for in the Operator's Manual, to be free from defects in materials or workmanship for a period of thirty (30) days from the invoice date for the parts. Farm King will fulfill this limited warranty by, at its option, repairing or replacing any covered part that is defective or is the result of improper workmanship, provided that the part is returned to Farm King within thirty (30) days of the date that such defect or improper workmanship is, or should have been, discovered. Such parts must be shipped to the Farm King factory at the purchaser's expense.

WHAT IS NOT COVERED

Under no circumstances does this limited warranty cover any components or parts that have been subject to the following: negligence; alteration or modification not approved by Farm King; misuse; improper storage; lack of reasonable and proper maintenance, service, or repair; normal wear; damage from failure to follow operating instructions; accident; and/or repairs that have been made with parts other than those manufactured, supplied, and or authorized by Farm King.

AUTHORIZED DEALER AND LABOR COSTS

Repairs eligible for labor under this limited warranty must be made by Farm King or an authorized Farm King dealer. Farm King retains the exclusive discretion to determine whether it will pay labor costs for warranty repairs or replacements, and the amount of such costs that it will pay and the time in which the repairs will be made. If Farm King determines that it will pay labor costs for warranty work, it will do so by issuing a credit to the dealer's or distributor's account. Farm King will not approve or pay invoices sent for repairs that Farm King has not previously approved. Warranty service does not extend the original term of this limited warranty.

Farm King

Limited Warranty (Continued)

WARRANTY REQUIREMENTS

To be covered by warranty, each new product must be registered with Farm King within thirty (30) days of delivery to original retail purchaser. If the customer decides to purchase replacement components before the warranty disposition of such components is determined, Farm King will bill the customer for such components and then credit the replacement invoice for those components later determined to be covered by this limited warranty. Any such replacement components that are determined not be covered by this limited warranty will be subject to the terms of the invoice and shall be paid for by the purchaser.

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY WARRANTIES, REPRESENTATIONS, OR PROMISES, EXPRESS OR IMPLIED, AS TO THE QUALITY, PERFORMANCE, OR FREEDOM FROM DEFECT OF THE COMPONENTS AND PARTS COVERED BY THIS WARRANTY AND NOT SPECIFICALLY PROVIDED FOR HEREIN.

TO THE EXTENT PERMITTED BY LAW, FARM KING DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ON ITS PRODUCTS COVERED HEREIN, AND DISCLAIMS ANY RELIANCE BY THE PURCHASER ON FARM KING'S SKILL OR JUDGMENT TO SELECT OR FURNISH GOODS FOR ANY PARTICULAR PURPOSE. THE PURCHASER'S ONLY AND EXCLUSIVE REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ON FARM KING'S PRODUCTS ARE THOSE SET FORTH HEREIN. IN NO EVENT SHALL FARM KING BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING, BY WAY OF EXAMPLE ONLY AND NOT LIMITATION, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE, OR COST OF REPLACEMENT OF RENTAL EQUIPMENT). IN NO EVENT SHALL FARM KING'S CONTRACT OR WARRANTY LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. (Note that some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusion may not apply to you.) This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Farm King neither assumes nor authorizes any person or entity, including its selling representatives, to assume any other obligations or liability in connections with the sale of covered equipment, or to make any other warranties, representations, or promises, express or implied, as to the quality, performance, or freedom from defect of the components and parts covered herein. No one is authorized to alter, modify, or enlarge this limited warranty, or its exclusions, limitations and reservations.

Corrections of defects and improper workmanship in the manner, and for the applicable time periods, provided for herein shall constitute fulfillment of all responsibilities of Farm King to the purchaser, and Farm King shall not be liable in negligence, contract, or on any other basis with respect to the subject equipment.

This limited warranty is subject to any existing conditions of supply which may directly affect Farm King's ability to obtain materials or manufacturer replacement parts.

Buhler Industries Inc. reserves the right to make improvements in design or changes in specifications to its products at anytime, without incurring any obligation to owners of units previously sold.

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